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ORIGINAL ARTICLES.

THE OPERATIVE TREATMENT OF RECTAL FISTULA.¹

By A. B. COOKE, M.D.,

OF NASHVILLE, TENN.

LECTURER ON DISEASES OF THE RECTUM, UNIVERSITY OF NASHVILLE.

I USE the term rectal fistula instead of the older expression "fistula in ano." This I do advisedly. Only the small group of fistulæ resulting from marginal abscess is properly comprehended under the latter title. In the large majority of cases the internal opening, when one exists, is above the external sphincter, and so, correctly speaking, within the rectum. Rectal fistula, therefore, is the proper title and should always be employed.

Fistula results from abscess. This in a nutshell is the etiology. Other causes which are credited with its production are so rarely in evidence that for all practical purposes they may be disregarded. Abscess is merely the initial stage of a process of which fistula is the effect or sequence. The best kind of treatment is preventive treatment, which means proper treatment of the abscess, *vis.*: early and free incision, perfect drainage, and daily dressings, the great object persistently strived for being to introduce closure of the abscess-cavity from the bottom.

At the very outset of the consideration of the operative treatment of rectal fistula we are confronted by several very important questions: (1) Is there any risk of injury to the general health in curing a fistula? (2) Can a fistula be cured without operation? (3) When pulmonary tuberculosis coexists, is operative treatment indicated or permissible?

In whatever terms couched, the answer to the first question should invariably be in substance that, where no serious complication nor contraindication is present, positive and pronounced benefit to the general health may be confidently expected to follow cure of the fistula.

In answer to the second question, Can a cure be effected without operation? it is possible, but extremely improbable, as well as uncertain. Stimulating injections, the fistulatome, the elastic

ligature, and even, in rare instances, the simple passage of a probe may effect a cure. But in such cases the essential condition is that there shall be only one channel, and this condition, especially in long-standing cases, is so seldom encountered that it may be regarded as little less than unique. Open to the same objection is Lange's operation, which otherwise would be as practicable as it is eminently surgical.

A perfectly satisfactory answer to the third question would compel a thorough discussion of the relationship between pulmonary tuberculosis and rectal fistula. In these cases two distinct classes must be recognized, the difference between which is of vast significance. In the first, the fistula is merely a coincident trouble and owes its existence to causes entirely without the pulmonary area—in other words, it is a fistula in a tuberculous subject. In the second, the fistula is secondary to the pulmonary disease and results from it, having its origin in a tubercular abscess in the perirectal tissues, or, in other words, the fistula is itself tuberculous. When the latter condition obtains, unless seen at the very outset, the fistula is practically certain to consist of multiple channels, and the result of operation would be to leave large, open, unhealthy wounds, the healing of which would constitute a very remote probability. And since pulmonary disease is also present, and the patient usually in a greatly enfeebled condition, the administration of an anesthetic would be no inconsiderable risk. Consequently, we may say that in this class of cases operation other than for the purpose of securing drainage would be positively contraindicated. In the former class, however, where the fistula and the pulmonary trouble merely coexist, a different answer may often be given. Here three questions present themselves for consideration: (1) Will the pulmonary disease be aggravated by curing the fistula? (2) Can the patient take an anesthetic with safety? (3) Will the wound heal after operation?

The first question is one which may now be properly disregarded as belonging to the period of surgery, when hemorrhage from internal hemorrhoids was deemed salutary, and when indiscriminate phlebotomy, moxæ, setons, etc., held sway. But the two last questions are of

¹Read before the Middle Tennessee Medical Association, Pukaki, May 21, 1896.

vital importance. The probability of an anesthetic being safely borne can only be determined by careful physical examination of the lungs, and may be heightened by the employment of chloroform instead of ether. Chloroform is much less irritant to the lungs and, in operations upon the rectum, I have learned to regard it as practically free from danger in addition to possessing decided advantages over ether. Whether or not the wound will heal it is almost impossible to foretell. The general condition of the patient, the manner in which the vital functions are performed, the extent of emaciation, and the amount and violence of the cough must all be considered and duly weighed. If affirmative answers are obtained to both these questions, then operate—one exhausting disease is certainly better than two. The after-treatment will differ materially from that in ordinary cases.

Of whatever variety the fistula may be, whether complete, blind external, or blind internal, the principle of the operation is identical, and its success in any given case will absolutely depend on the methodical observance of four fundamental maxims: (1) Careful and painstaking examination for associate or causative pathological conditions of the rectum. (2) Thorough preparation of the patient. (3) Strict antisepsis, and (4), and probably most important of all, proper after-treatment.

In a typical case of complete fistula the operation is briefly as follows: The patient, having been anesthetized, is brought to the edge of the table and placed in a lithotomy-position, the legs being supported by a Clover's crutch. A strong, grooved director is then passed through the fistulous tract, the end received upon a finger of the other hand introduced into the bowel, and, if possible, made to emerge through the anus. With a strong, curved bistoury, or pair of scissors, the bridge of tissue overlying the director is then completely divided. Now the operation is only begun. Every sinus and diverticulum is to be sought out and divided. Then with a curette or sharp spoon the diseased lining membrane of each sinus is to be entirely scraped away, and all thin and overlapping edges trimmed off. The surgeon who hesitates to sacrifice tissue in this operation, like him who aims for cosmetic effect in the removal of a carcinomatous breast, courts failure and disappointment. The wound left by an operation properly performed, in some cases, is formidable to behold. It is occasionally even necessary to remove the larger part of a buttock. But under strict antisepsis large wounds are not to be feared.

Even in the worst cases healing and recovery are often astonishingly rapid.

Where the fistula is of the horse-shoe variety, *i. e.*, with the external and internal openings on opposite sides of the rectum, or with two or more cutaneous openings, and only one mucous, some modification of the operative procedure will be required. In these cases it is better to follow up the different channels by dissection from without, in order to obviate the danger of dividing the sphincter in more than one place. This is never necessary, for however many external openings there may be, it is a rare exception for more than one internal opening to be found.

In the variety known as anal, or marginal fistula, the operation is the same as given for the complete variety, only much simpler. After division of the sinus the operation is completed by merely drawing the knife through its base so as to sever a portion of the fibers of the sphincter and set the parts at rest. In other words, first convert the fistula into a fissure and then cure it by the Boyer method. General anesthesia is not always essential for this manipulation.

Whatever the variety of fistula, an important point, and one on which the success of the operation will largely depend, is to remember that the mucous membrane is frequently undermined for considerable distance around the internal opening, a submucous tract sometimes running up the bowel for an inch or more. It is always necessary to trim away this overhanging tissue and to divide the submucous channel to its farthest point.

Now we come to the questions of dressing and after-treatment. These are the crucial features. Hemorrhage from every source having been perfectly controlled, the raw surfaces irrigated and dried, and an anodyne suppository inserted, if deemed advisable, the first dressing should consist of iodoform-gauze placed lightly—not packed—in the wound until it is filled in every part and from the bottom. Over this bichlorid-gauze is placed and covered by a generous pad of absorbent cotton, and the whole retained in place by a T-bandage firmly applied. Unless indicated by the amount of exudation or discomfort of the patient, the dressings need not be changed until the second or third day, at which time the bowels should be moved. Over this the surgeon or a competent assistant should exercise personal supervision. It is best accomplished by administering a laxative twelve hours in advance, and preceding the stool by an enema of tepid water or, better, the injection of half a pint of pure olive-oil. The parts are then to be thoroughly

cleansed, the wound well irrigated with an antiseptic solution and fresh dressings applied in the same manner as before. This is to be repeated after each stool. The patient should be kept on a light but nourishing diet, and any tendency to diarrhea met by an occasional dose of bismuth.

Nothing is to be accomplished by keeping the patient in bed for a prolonged period. Especially to the tuberculous subject exercise, air, and sunshine are of the first importance, and provision should be made accordingly. After the second or third dressing in ordinary cases, if everything goes well, the patient may be directed to report at the office for further treatment.

One precaution which should be observed at every dressing is to pass a probe or the finger to the bottom of the wound, so as to break up any adhesions which the gauze may have failed to prevent. The principle upon which hope of success is to be placed is closure of the wound throughout its whole extent from the bottom.

The wounds necessitated in this operation are occasionally so large that their healing requires months; but with a careful observance of antiseptic precautions I have seen even the largest carried to a perfect result without the appearance of a single trace of suppuration.

The dangers of the operation are practically limited to two, *vis.*, hemorrhage and incontinence of feces. The former is almost exclusively a primary danger arising at the time of operation, chiefly in those cases where the internal opening is far up the bowel and the tract passes through the pelvic diaphragm and the so-called superior pelvi-rectal space, and in patients the subjects of hemophilia. Modern hemostatics have minimized this danger, and only the timid and unskilful hesitate to incur it. When ligation of the bleeding points is impossible, the free use of ferrous sulphate and iodoform, equal parts, or the former alone, will nearly always prove successful. If other means fail, the resource is still left of plugging the rectum. When this expedient is resorted to, provision for the escape of flatus should always be made, else great discomfort to the patient is sure to ensue.

The other danger, incontinence of feces, is properly speaking a sequence. It likewise arises most frequently in those cases in which the internal opening is above the pelvic diaphragm, and always follows division of the sphincter at more than one point. The most satisfactory methods of treating this condition are, according to the case, application of the actual cautery, and ap-

proximation of the severed ends of the sphincter by dissection and suture.

A brief summary of the more important points made, together with a few general remembrances, may not be out of place:

1. A careful physical examination of the lungs as well as of the entire rectum to be made in every case.
2. Pulmonary tuberculosis not necessarily a contraindication.
3. Do not put down knife until certain that every sinus has been divided.
4. Remove *all* diseased tissue. Large wounds not to be feared.
5. Caution: The sphincter to be divided only once and at right angles.
6. Special attention to the mucous opening.
7. Invasion of the perineum to be avoided, especially in females.
8. Systematic antiseptics necessary if good results desired.
9. Care and patience in the after-treatment. Dressings not to be left to the family or nurse.
10. In the after-treatment two warnings to be heeded: Complaints of unusual pain by the patient and increase of the discharge. Either of these may mean the formation of another abscess.
11. Hemorrhage and incontinence of feces the chief dangers. Both amenable to treatment and should not deter from the operation.

I should feel recreant to duty did I close without a plea for careful, thorough, painstaking examination in every case of rectal disease. The subject of fistula is an important one, and far more frequent than is generally supposed, being limited to no age, class, nor condition of life. Yet, in common with every other disease of this portion of the body, it is usually termed "piles" by its possessor, and as such prescribed for by the physician consulted without an examination even being requested.

THE PROPER MANAGEMENT OF APPENDICITIS.

By J. W. HICKMAN, M. D.,
OF TACOMA, WASHINGTON.

THE medical world has not yet arrived at a uniform method of treating appendicitis. It would seem, when taking into account the voluminous literature upon this subject and the great mass of facts that have been collected, that the wide differences of opinion in this direction should not obtain.

There are able men who would operate on every case at the earliest possible moment after making

sure of the diagnosis. Again, there are among our best surgeons those who would wait until there has been pus-formation, or at least an appreciable tumor. There are equally good surgeons who hold a middle ground and call it conservative. The position of the latter would be impregnable were they able to diagnosticate the catarrhal from the suppurative form of the ailment. The one does not always require operation, the other does.

It cannot be denied that operation in every case as soon as the diagnosis is satisfactorily made will, in skilled hands, give results almost, if not entirely, free from a death-rate. Nor can it be denied, either, that by this rule some cases will be operated upon that would get well and stay well without operation. The central query here is this: What percentage of catarrhal appendicitis will be followed by a recurrence, and what percentage of recurrent appendicitis will forever remain free from pus-formation? I have seen no statistics that will satisfactorily answer these questions. I have recorded in my note-book details of a case that occurred five years ago. The attack was a typical one; the symptoms were all severe; the patient was confined to bed for ten days, and during the week following there was a readily perceptible tumor, tender to moderate pressure. This case was preceded by constipation, and it is recorded that the cause "was acute indigestion." There was no recurrence till one year ago, and then a very light attack, which disappeared after the exhibition of a saline cathartic. Since then the patient has been well.

I have a little patient of twelve years who has an attack of appendicitis whenever she becomes even slightly constipated. The temperature rises to 100° F.; the pulse ranges from 100 to 120; colicky pains appear in the abdomen, with tenderness at the McBurney point and rigidity of the right rectus muscle; sometimes there is a little vomiting. This whole condition clears up as soon as the bowels have been thoroughly acted upon by sulphate of magnesia. She has had seven attacks within the last year; they do not increase in severity, and the condition is just as easily relieved as the first one was. I have seen several cases in which there has been no recurrence for one, two, and three years. Whether it is possible to have one attack and never have a recurrence, is a point I am not sure of. I do, however, feel sure that a recurrence is the rule; and I also feel sure that, sooner or later, an operation will be demanded in most cases, either

because life is in jeopardy or because the patient will get tired of being confined to bed for several days at varying intervals. I have also observed that an operation is usually more difficult on account of adhesions in patients who have had several recurrent attacks of catarrhal appendicitis; especially have I found this to be true when the appendix has been located posteriorly, pointing backward and upward. I have often wished in such cases that I had operated at the beginning of previous attacks.

Just as soon as we are able to differentiate those cases in which there will never be an abscess, and in which there will not be adhesions that will cripple portions of the bowel and thus interfere with its function, there will be a better reason to condemn those who operate in every case they see. At present it is not possible to do this. A more carefully conducted observation of all cases of appendicitis and more accurately kept records will contribute much to this end. All cases of appendicitis are not alike either in their morbid anatomy or their subjective and objective symptoms. It is, therefore, desirable to study each case with as judicial a mind as possible. This course and less of dogmatic assertion will lead medical men to more rational conclusions.

It is certain that an operation will cure appendicitis and forever prevent a recurrence. Now, is it equally certain that therapeutic measures other than this can accomplish as much? Operation furnishes the only possible means of saving life in a suppurative case. I must make a single exception that will include but a very small percentage of cases, namely: where adhesions are strong and the pus finds its exit either at the surface of the body directly or *via* one of the abdominal viscera. Will any medical man tell us how to make a differential diagnosis between the catarrhal and suppurative form of the disease before an abscess has actually occurred? It will not be enough to reply that the suppurative form may be recognized by the severity of symptoms either subjective or objective. Such a test is not a guide at the bedside. No one, so far as I know, has yet claimed to be able to separate the two prior to pus-formation. The surgeon who operates indiscriminately on all cases will operate on a certain percentage of cases where no immediate necessity for operation exists. Suppose he does; if he be competent to operate at all, what risks are run by his patient? But one; namely: ventral hernia in the future. By a short incision, by a careful approximation of divided surfaces, and an accurately fitting bandage for a year, the

percentage of hernia will be small, much smaller indeed than the death-rate resulting from an indiscriminate dependence upon purgatives and expectancy.

A few years ago I saw a case of appendicitis in a patient with advanced pulmonary tuberculosis. Owing to the latter condition no operation was advised. The symptoms were not more severe than I have observed scores of times in catarrhal cases, nor, so far as I could observe, were they different. A small tumor could be felt. At five P.M. of the fifth day he was suddenly seized with terrific pain shooting through the abdomen in every direction, and at midnight he was dead. The necropsy revealed the usual ragged hole at the base of the appendix, which had been enclosed by some weak adhesions, and the peritoneal cavity was full of pus.

My note-book contains records of another case interesting in this connection, and particularly interesting in another connection, *vis.*: to illustrate a point made above, that all cases are not marked by the same symptoms. This patient was attending to his business as usual when, with as abrupt suddenness as ever marks the entering of a duct by a calculus, he was stricken with abdominal pain of a most violent character. The pulse was rapid; temperature at first scarcely elevated. There was frequent vomiting; tenderness over the abdomen, not more marked in one place than another; marked tympany; in short, the case was, so far as could be made out, one of peritonitis. Twelve hours later the patient was in collapse, and about thirty hours from the beginning he was dead. Again the necropsy revealed the small, jagged opening at the base of the appendix, and the belly full of pus, but this time no trace of an adhesion anywhere.

The first case, as I have said, was not seemingly very severe, in fact, was just such a case as many an able practitioner would have treated expectantly. Though it was a suppurative case it wore no peculiar livery that would separate it from a catarrhal case of the same severity, so far as the physicians in attendance were able to observe; yet it must be admitted that no remedial resource save an operation would avail anything in such a case. In the latter case, had the belly been opened immediately, it is possible, though I admit not very probable, the patient's life might have been saved.

Since beginning this paper I have operated on a case, the main points of which I shall mention very briefly. The patient, a telegraph operator, had been suffering for ten days when I first saw

him, and had during most of this time attended to his work. At the time of my visit I found a tumor at the usual site, temperature was 100°, pulse 90, and there was not much pain, nor was the tenderness excessive. I operated at the earliest possible moment, and found an appendix covered in by the omentum, thickened to the extent of three-quarters of an inch, just as a handkerchief might be made to cover in a finger. Upon separating the omentum from the appendix, I found three or four drams of stinking pus and two ragged holes in the appendix. A large piece of omentum had to be removed. There were no other adhesions than between the appendix proper and the overlying omentum. Externally to the base of the appendix there was seen a gangrenous patch of cecal wall about the size of a dime. The case is doing well. The operation was an absolute necessity, and was very difficult; had it been done early it would have been very simple. On account of the pus it was necessary to leave most of the incision open, a grave disadvantage, that would have been obviated a week earlier. There was absolutely nothing in this case prior to operation that I have not seen duplicated in simple catarrhal appendicitis; yet here was pus and here was also a patch of gangrenous cecal wall, not covered by any adhesion, that would in a few hours have permitted the contents of the gut to have escaped into the peritoneal cavity.

The question of the proper management of appendicitis is capable of any amount of argument, but I am entirely convinced that the disease is purely a surgical one, that the only safe treatment is operation. Other therapeutic measures will avail in perhaps a majority of cases, at least in the first attack, or possibly in the first few attacks. I know, however, that any other means of treatment will be marked by a mortality-rate, and this must be true until we are able to separate catarrhal from suppurative cases. This I repeat cannot be done at present. Then why not operate at once in all cases? Such a course, in properly qualified hands, is as nearly absolutely safe as any operation can be. Suppose some cases are operated on that would have gotten over the attack without operation; better this than to run so grave risk as we must encounter when we wait.

Infected Cuba.—A recent report to Surgeon-General Wyman tells of an increase of both smallpox and yellow fever in Havana. The latter disease is chiefly confined to the Spanish troops, while the natives furnish most of the smallpox-cases.

ERUPTIONS FROM MERCURY.¹

By DOUGLAS W. MONTGOMERY, M.D.,
OF SAN FRANCISCO;
PROFESSOR OF DISEASES OF THE SKIN, MEDICAL DEPARTMENT
OF THE UNIVERSITY OF CALIFORNIA; CONSULTING
PHYSICIAN FOR DISEASES OF THE SKIN
AND FOR PATHOLOGY, GER-
MAN HOSPITAL.

MERCURY and its preparations are powerful in altering physiological action, and in controlling disease, and in some susceptible people this power may produce either dangerous or disagreeable effects. It causes, for instance, a variety of rashes of the skin, most frequently an erythematous or scarlatinoid eruption, of which the following are examples:

On December 3, 1893, a healthy, bright-complexioned, dark-haired man, twenty-six years of age, consulted me for a nummular psoriasis of the trunk and extremities that had appeared for the first time a few days before. A salve was ordered consisting of equal parts of white-precipitate and oxid-of-zinc ointments to be rubbed into the patches. The diseased areas did not implicate much of the skin, and no trouble from absorption of the drug was expected. Furthermore the preparation was not a strong one. The unguentum hydrargyri ammoniati is a ten-per-cent. ointment, and it was reduced by the addition of oxid-of-zinc ointment to five per cent. Four days after prescribing for the patient, I was called and found him suffering from a bright-red, itching, and burning rash, that was most marked at the flexures of the joints. As the patient suspected he might be suffering from syphilis it became important to determine the true nature of the eruption. It was clearly not a syphilitic roseola, which is spotted, whereas this was diffuse, and furthermore the syphilitic rash is without subjective symptoms, while this was extremely itchy and burning. On stopping the use of this ointment the rash quickly disappeared. The violent reaction of the skin had, however, a favorable effect on the psoriasis, which also faded away, and had not reappeared when the patient was last seen by me two and a half years afterward.

Although the eruption was ascribed to the mercury, yet there was a possibility that it might have been due to other causes, for instance to the fat of the ointment being rancid, as there are fatty acids in rancid fat that are very irritating to sensitive skins. Neisser² says that the so-called mercurial eczemas from the application of blue ointment are caused by inferior ointments

that contain turpentine, fatty acids, nitro-benzol, etc. He does not, however, deny the existence of true mercurial exanthems.

A subsequent experience with the same patient, however, showed that the mercury was really the offending substance. On November 16, 1895, he came to me with a pimple on the frenum of the penis, and a small shallow ulcer with a dirty, yellow floor, in the sulcus. These lesions had appeared a day or two after exposure. Not thinking of his susceptibility to mercury, black wash was prescribed, and by the next day he had a dermatitis mercurialis of the glans (balanitis mercurialis), with considerable edema of the prepuce. The black wash was suppressed, and he was ordered a powder of subgallate of bismuth, under which both the venereal and mercurial symptoms quickly disappeared. As is well known, black wash is for most people a very mild preparation, made by adding one dram of calomel to a pint of lime-water (1-128).

Calomel is usually a very mild preparation, causing no irritation either to the skin or to the mucous membranes, but not long since I had an experience illustrating its power of causing a disagreeable eruption. A man, forty-five years of age, who was confined to his bed on account of an operation for a large sarcoma of the thigh, but who otherwise enjoyed good health, got an uncomfortable itchiness of the anus and scrotum, which was probably caused by indigestion and constipation, brought on by confinement in bed. As the mercurial preparations are among the most successful antipruritics, and calomel-ointment is particularly useful in pruritus ani, a dram of calomel rubbed up in an ounce of simple ointment was ordered applied to the anus, perineum, and scrotum. In a couple of days the skin of the genitals and crotch was scarlet and swollen, with marked edema of the prepuce. But on discontinuing the calomel-salve, and applying an oxid-of-zinc ointment, the erythema quickly subsided. In this case there was a superficial dermatitis around the field of operation on the thigh, and the inflammation of the genitals might easily have been mistaken for an erysipeloid extension of the process. Gaucher,³ in mentioning the rarity of calomel causing an eruption of the skin, relates a case where a single application of calomel-ointment caused an erythematous and eczematiform eruption implicating nearly the half of the body. After this rash disappeared, the patient took two

¹ Read before the California State Medical Society, Los Angeles, April 24, 1896.

² Verhand. des V. Congresses der deut. derm. Gesellschaft.

³ Arch. f. Dermatologie und Syphilis, 1895, vol. xxiv, p. 104.

⁴ "Leçons sur les maladies de la Peau," par E. Gaucher, 1895, p. 113.

pills containing a centigram of sublimate each, and the day following he had a generalized desquamative scarlatiniform erythema, accompanied by a vesicular eruption simulating eczema.

But in attributing a mercurial dermatitis to the action of calomel, when applied to the genitals, one must be on the alert for at least two sources of error; in the first place, that the irritation may not be due to the mercury at all, but, as suggested in the relation of the preceding case, to the action of rancid fat in the ointment-base; and in the second place, that the patient may be taking potassium iodid, which, being voided in the urine, comes in contact with the calomel, and forms the biniodid of mercury, a very much more irritating salt. In 1890, Cordier¹ drew attention to the fact that a severe balanitis may occur from the potassium iodid in the urine coming in contact with calomel 'dusted on the glans. For this to take place, however, a long foreskin seems to be necessary, so that a very considerable quantity of urine may be sucked up under the prepuce by capillary attraction. It would be quite unlikely that dribbling urine containing potassium iodid coming in contact with calomel-ointment would make enough biniodid of mercury to irritate the skin of an ordinary individual. It is as well, however, to bear this contingency in mind in any case like the above, where such a mild preparation as calomel irritates² the skin. This patient was not taking potassium iodid during the time the calomel-ointment was being applied to the genitals.

In this same patient the sarcoma recurred in a few weeks, and a second operation was undertaken for its removal. Without thinking of his susceptibility to mercury, a sublimate gauze-dressing was applied to the wound. On the second day the skin was bright-red, tense, shining, and excruciatingly itchy, and the affection might easily again have been mistaken for erysipelas. The dermatitis quickly subsided on changing the dressing.

In both these cases, therefore, a rash was caused by an ointment containing a mercurial preparation, and, as if to show conclusively that it was the mercury and nothing else that caused the mischief, the other mercurial preparations that were not applied as ointments also caused an erythema. Both patients were very sensitive to

mercury, but fortunately they got well promptly on the withdrawal of the drug. This does not always occur, however, as the rash may continue for a long time after all contact with mercurial preparations has ceased.

Another fortunate circumstance was the localization of the erythema to those parts where the mercury has been applied, as a single application to a limited portion of the skin has been known to cause a widespread rash, as in a case reported by Dr. Alexander,³ where a ten-per-cent. white-precipitate salve applied once to the eyelids caused a universal eczema.

SERUM-THERAPY AND PROTECTIVE INOCULATION.⁴

By JOHN RUHRÄH, M.D.,

OF BALTIMORE, MD.;

RESIDENT PHYSICIAN, BALTIMORE CITY HOSPITAL; DEMONSTRATOR OF BACTERIOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE.

(Concluded.)

Syphilis.—In syphilis we see a natural immunity under several different conditions: in the tertiary stage of the disease for primary and secondary symptoms; in children of a syphilitic mother (Profeto's immunity); and in the mother giving birth to a syphilitic child (Colle's immunity). The experiments in producing curative effects by the use of blood-serum are embodied in a number of reports. Richet and Hericourt were the first to try it, and in 1891 treated several cases with serum from a dog which had been injected with the blood of a syphilitic patient. The two cases first experimented upon are of historic interest. The first patient, a woman, who had contracted syphilis twenty years before, presented symptoms of a tabetic nature, and these were cured by three injections of 2 c. c. of serum within a week. The second patient, a young woman, with syphilis of eighteen months' standing, showing a great deal of ulcerating surface, was greatly benefited after seven injections, the ulcerating surfaces decreasing in size by four-fifths. Tommasili, Giuseppe Mazza, Kallmann, and others used the serum from the blood of animals naturally resistant to syphilis, such as dogs, sheep, calves, lambs, and rabbits. This serum, while apparently causing improvement at first, was followed subsequently by a return of the acute symptoms, and the disease ran its course uninfluenced.

Pellizzari was the first to apply to syphilis the procedure used in other infectious diseases, viz.: that of using blood-serum from animals having an

¹ Sur une nouvelle variété de balanite, *Lyon Médical*, No. 1, 1890. Abstract in the *Annales de Dermatologie et de Syphiligraphie*, 1890, p. 442.

² Oculists have long been aware of the danger of dusting calomel in the eyes of patients taking potassium iodid internally, as the potassium iodid in the tears, coming in contact with the calomel, may form the biniodid of mercury, of which a very small quantity is irritating enough to cause a severe conjunctivitis.

³ *Arch. f. Dermatologie und Syphilis*, 1884, p. 105.

⁴ Prize-essay for 1895 of the Alumni Association of the College of Physicians and Surgeons, Baltimore.

acquired immunity. He injected a serum from a tertiary-stage syphilitic into patients suffering from an earlier stage of the disease. The results were not very successful, evidently due to the weakness of the serum. The cases ran their usual course, although decreased in duration and intensity. Gilbert and Fournier of Paris treated a number of cases with serum prepared from she goats and dogs. These animals were injected with the blood of syphilitics presenting fully developed secondary symptoms. Ten injections were given to them in fifty days, using 180 grm. of blood. Other goats were inoculated with nine chancres in two months, and another dog with chancres and papules, and also given blood-injections. The serum from the animals was apparently about the same. Seventeen cases were treated in all with varying results. In some cases little or no effect was noted; in others there were improvement in general conditions, recovery of strength, and abatement of symptoms.

Neumann of Vienna reports a number of cases treated with lamb's blood, and with the blood of a tertiary syphilitic. Results were in the main unsatisfactory, some improvement being noted, but it was not permanent. Researches in the use of the blood-serum of tertiary syphilitics by Vieviorovsky of St. Petersburg confirm Pellizzari and Gilbert's reports. Five cases were treated.

The application of serum-therapy to syphilis meets with practical difficulties, among which is the absence of a knowledge of the specific cause of the disease. In this connection, however, it has not the practical importance that it has in other diseases, for we already possess very efficient means of treatment, but there are cases that resist mercurials and iodids and in these it would be particularly valuable. In a disease like syphilis, with its manifold late manifestations, a generation or two must live and die to determine absolutely the value of any new treatment.

Typhoid Fever.—In this disease some very interesting work has been done; beginning with the researches of Chantemesse and Widal in 1892. These observers found, as early as 1888, that susceptible animals could be rendered immune by inoculating them with cultures of the typhoid organisms which had been rendered sterile by heat. These showed immunity from inoculations with the typhoid bacillus, but not from its toxin. This toxin was first described by Pfeiffer in 1894. He found that it was associated with the body of the bacillus, and that it was not found in cultures sterilized by filtration. The toxin is not destroyed

at the temperature, 54° C., which kills the organism.

Neisser in 1893 found that mice injected with the blood-serum of convalescent typhoid patients resisted three or four times the usual toxic dose of cultures of the organism. Stern, in 1894, found that the blood of individuals who have previously had typhoid produced immunity; also that the blood from fatal cases had the same effect. In the fatal cases the blood was taken from the body shortly after death. He also found that in a series of persons who had not had the disease, the blood in some cases caused resistance to the organisms, although larger doses were required. Stern suggests that in these cases the patients had suffered from an unrecognized attack of typhoid. Another interesting point was elicited in 1894 by Cæseris, Demel, and Orlando. They found that animals rendered immune from the coli bacillus of Escherich were also immune from typhoid fever, and *vice versa*. Peiper, before the German Congress of Internal Medicine, August, 1895, reported that he had immunized sheep against typhoid by repeated injections of cultures of the typhoid bacillus sterilized at 55–60° C., which, of course, did not destroy the toxin. The serum from these animals, when injected into guinea-pigs, protected them from several times the toxic dose of the bacillus of typhoid fever, and cured guinea-pigs inoculated with a fatal dose, even when administered some three or four days after injection.

The application of an antityphoid serum to the human being was made by F. Klemperer and E. Levy in the wards of Dr. Naunyn of Strasburg. The serum was obtained from dogs protected by inoculations of cultures of medium virulence. Five patients in the first week of the disease were inoculated with 20 c. c. of serum on three successive days. The injections were well borne, and produced neither albuminuria nor urticaria. The disease ran a shorter course than usual in each of these cases. The fever at once showed marked morning remissions, and ceased entirely toward the close of the second week, or at the beginning of the third. One case relapsed after a week. There is such a marked difference in the various cases of typhoid that it is impossible to form anything like a definite idea of the value of this treatment. The small number of cases treated could easily make the results appear as coincidences.

Another method of treatment was tried by Fraenkel and Manchot in 1893. They treated fifty-seven cases of typhoid with sterilized cultures of the bacillus grown in thymus-bouillon. The course of the fever was considerably modified,

pyrexia occurring earlier, and the morning remissions being more marked. The same treatment, using instead the *Bacillus pyocyaneus*, was tried by Rumpf in 1893, and Kraus and Buswell in 1894. The results were unsatisfactory. Leaving out the five cases of Klemperer and Levy, nothing has been done in the serum-treatment of this disease of any practical importance. The fact that the disease runs a definite course and is followed by a slight period of immunity, makes it seem probable that further developments may give more satisfactory results.

Asiatic Cholera.—Among the diseases that have come in for their share of research-work in protective inoculation is Asiatic cholera. Many curious and interesting facts have been elicited concerning this disease and the toxin of the spirillum of Koch, or what is ordinarily spoken of as the comma bacillus. Several toxic substances have been isolated by Brieger and others, but the principal interest attaches itself to the protective inoculations of Ferran, and later of Haffkine, and to the serum-treatment of Ransom, the last named not yet tried upon man.

The method of Ferran, which was extensively used in Spain during the epidemic of 1885, consisted in the injection of 1 c. c. of a pure culture of the culture in bouillon into each arm of the person to be protected. The official reports were collected some time after its use, and there has been much written and said concerning the efficacy of the treatment. According to the official reports, the death-rate was about 43 per cent. in unprotected individuals, and 25 per cent. in protected individuals attacked. A much less number of the injected had the disease, than of those unprotected.

Shakespeare, who was sent to Spain by the United States Government, reporting upon the method says: "It would seem from analysis of official statistics that the method of anticholeric inoculation after the method of Ferran, besides giving immunity from attack and death by cholera, furnishes a means of bringing an epidemic to an end."

Haffkine of the Pasteur Institute in 1893 published his method of protective inoculation for cholera. This method, first tried upon animals, next upon himself and other individuals, and subsequently upon persons in India, shows it to be without danger. It consists in acclimatizing the system as it were, first to weak cholera-poison, and then to stronger poisons, or, as Haffkine calls it, the poison from "exalted" cultures. This develops a high degree of resistance in

animals and also in man. The aim is to establish a resistance sufficient to withstand the absorption of the cholera-poison from the intestinal tract, should infection take place. The vaccinations are usually done upon the arm and cause only slight malaise and some edema and tenderness about the puncture. The vaccines consist of attenuated and exalted cholera-cultures, and may be either of living bacteria or an emulsion of cholera bacilli that have been killed by dilute carbolic acid. The living vaccines are more powerful and are difficult to keep and transport; the carbolized vaccine is not so powerful but is less liable to prove a source of infection, and it also keeps well and may be easily carried about.

The attenuated cultures are obtained by growing the organism in a medium, aerated at 39° C. for several days. The exalted cultures, which are very virulent, are grown in the peritoneal fluid in the peritoneal cavities of live guinea-pigs. As soon as an animal dies, the peritoneal fluid is transferred to the peritoneal cavity of another under the strictest aseptic precautions. This is continued until the cholera-spirillum has obtained its maximum exaltation, determined when the time between inoculation and death is no longer shortened. Generally from twenty to thirty guinea-pigs are used before this comes about. The bacilli-laden fluid is then inoculated into an agar-tube of standard size, and a smooth, even surface-culture obtained by growing it for twenty-four hours in a thermostat. Two or three cubic centimeters of broth are then put in the tube and the culture thoroughly mixed with it. It is then pipetted off and broth (bouillon) added to make 8 c. c. The carbolized vaccines are similarly prepared, using instead five-per-cent. carbolic acid. Only 6 c. c. are made from a tube, in order to compensate for the loss of strength on adding the acid. The attenuated vaccines are prepared in the same way. One cubic centimeter is a dose, and from three to five days elapse between the vaccinations.

The method was tested by Haffkine in India from April, 1893, to July, 1895, and he summarized his results before the Royal College of Physicians and Surgeons as follows: "In all those instances where cholera has had a large number of victims, that is to say, where it had spread sufficiently to make it probable that the whole population inoculated and uninoculated were equally exposed to infection, in all these places the results appeared invariably favorable to inoculation. After an epidemic actually breaks out, it tends to reduce the mortality even during

the time which is claimed for producing the full effect of the operation."

Koch believes that, from Haffkine's reports, the value of the inoculations has been determined. Haffkine intends, however, to make further studies in this line, and also to test the power of antitoxic serum obtained from immunized animals. Pfeiffer of Berlin has prepared a quantity of an antitoxic serum that is very active in animals, and that Haffkine intends to use in his first experiments.

The application of serum-therapy to cholera is embodied in a few scattered reports by Pawlowsky, Buchstab, Federoff, and others. The results show that dogs and guinea-pigs may be rendered immune by injection of blood-serum from animals that have been immunized by means of sterilized cultures. Freymouth of Danzig reported three cases treated by inoculations of serum from individuals who had recently recovered from the disease. One died. Of the others one received 80 c. c., the other 20 c. c. of serum.

By far the most important results have been obtained by Ransom, who reported his experiments in July, 1895. He obtained a toxin from cholera-cultures by a method that he does not describe—a solid, having the same properties as the vibrio and its cultures. With small doses of this toxin he immunized guinea-pigs, sheep, and goats, and obtained a blood-serum possessing antitoxic properties against the cholera-poison and the living cholera-vibrio. As yet the serum has not been tried upon man, but from a theoretical standpoint it promises better success than the methods of other investigators.

La Grippe.—The practical application of serum-therapy to the treatment of influenza, or la grippe, as it is called, has not yet been made, but, in view of the experiments of Bruschettini on rabbits, it seems highly probable that something may be done in this line. In 1893, this observer published the results of his experiments, which, in brief, are as follows: He vaccinated rabbits with a filtered blood-culture of the bacillus of Pfeiffer, which is now established as the cause of the disease. The blood of rabbits so inoculated contained an antitoxin that, inoculated into rabbits infected with the grippe-organism, exerted a most marked curative action. It conferred immunity on rabbits when used in the proportion of 1-42,000 of the body-weight.

Bubonic Plague.—Another recent discovery in immunity has been made by Yersin, Calamette, and Borrel of the Pasteur Institute, working under Roux's direction. They have succeeded in showing the possibility of immunizing animals

from bubonic plague, and in curing those suffering from the disease. Immunity was conferred on rabbits, guinea-pigs, and mice by means of injections of large quantities of the cocco-bacillus of Yersin, which had been heated for an hour at 58° C. The filtered cultures had no effect on the animals. Serum from these animals conferred immunity on other animals. A horse, immunized by a similar method, gave a serum that produced immunity in animals. It is well to note that no other curative serum, antidiphtheritic, anti-erysipelatous, antitetanic, or antivenomous produces immunity or cure in the plague.

Typhus Fever.—In passing rapidly over the various diseases in which the serums have been used, one should not leave out typhus fever, as Legrain, according to the reports of Shaefer, used the blood-serum from patients who had previously suffered from the disease, with alleged good results. This was during an epidemic in Algeria.

Yellow Fever.—Much more interesting to Americans is the plague of the Southern countries—yellow fever. Sternberg, in his book "Immunity and Serum-therapy," in the chapter devoted to this subject, cites some attempts at producing immunity in that disease that are amusing, if not of scientific value. Among them is the method of Humboldt, who attempted to produce immunity by inoculating animals with the putrefying livers of sheep which had been bitten by a certain species of serpents. The recent so-called mosquito-inoculations are interesting, though not successful. These consisted in allowing a mosquito that had fed upon a yellow-fever patient, to sting a person desiring to be inoculated. The inoculation recommended by Freire of Rio Janeiro deserves mention on account of the prominence given to the method. This consisted in vaccination with attenuated cultures of a micrococcus, that Freire thought to be the cause of the disease. It is hardly necessary to add that this micrococcus is not admitted to that important rôle by competent observers, and that the vaccinations proved fruitless.

Pneumonia.—A few years ago the medical world was aroused by the experiments of G. and F. Klemperer concerning the toxin and antitoxin of the *Diplococcus lanceolatus capsulatus* of Fraenkel, the specific microorganism of lobar pneumonia. They succeeded in isolating a toxalbumin from bouillon-cultures by precipitating it with alcohol. By using filtered cultures, they immunized rabbits. They claimed that there is an antitoxin produced in the blood of the immunized animal that renders the toxin innocuous.

Issaeff differs with them in this respect, as he claims that rabbits are rendered immune from inoculations with the diplococcus, but not from injections of the toxalbumin. However, the blood-serum of these immunized animals, when injected into other animals, produces immunity from inoculation and, furthermore, if the animal is already infected, it exerts a marked curative effect. Encouraged by these successes, the serum was tried upon six cases of pneumonia in Leyden's clinic in Dresden. About 6 c. c. was injected under the skin of each patient; all recovered. In all the cases there was an immediate fall of temperature to normal; in two cases it remained normal, and in two others it rose again in six hours. Emmerich claims that a degree of immunity higher than that produced by the Klemperers can be brought about, and he expresses great hopes for the future of serum-therapeutics in pneumonia. Certainly, a much higher degree of perfection in methods, and many more convincing experiments must be made before it can be applied to the treatment of the disease in general practice.

Smallpox.—The phenomena and history of smallpox are too well known to need more than passing notice. We know but little more of the disease than Jenner did. The cowpox is rather to be regarded as a modified form of smallpox in the bovine than a special disease, and this is especially true when viewed in the light of recent revelations in the immunity produced in other diseases. Sternberg, and subsequently Kinyon, showed that the blood-serum from an immune calf prevented vaccination from "taking" if the vaccine-points were immersed in it. This was found to be true of both bovine and humanized vaccine-virus. Sternberg, and later Kramer, Boice, and Landmann showed that injections of blood-serum of immunized calves, or of patients recently recovered from smallpox, did not prevent the formation of the vesicle. Bédère, in December, 1895, before the Paris Academy of Medicine, stated that he found by experiment that the blood-serum of a heifer, if taken after the active stage of vaccination had passed off, prevents the "taking" of a vaccination when injected at the same time. This serum also possesses therapeutic power when injected later.

Anthrax.—This was among the first diseases to be experimented upon, and, as early as 1880, Toussaint published an article relating to the immunity from anthrax acquired as the result of protective inoculation. Toussaint's method consisted in inoculating sheep with defibrinated blood

from an animal dead from anthrax, either filtering it through paper or heating it to 55° C.

Pasteur found that a single attack of anthrax protected the animal from subsequent attacks, and working along the line of protective inoculations he found that grown in a high temperature the anthrax bacillus did not form spores, and also lost its virulence. Cultures so attenuated he used experimentally on sheep, and succeeded in producing immunity. This was in 1891. Chaveau in 1892 found that blood of animals dead from anthrax, heated to 50° C. for fifteen minutes, could be used as safely and with as good results as Pasteur's vaccine, and had the advantage of being much more easily prepared and used. The tip of a vaccine-point being covered with the blood, several scratches with it sufficed to vaccinate the animal. Subsequently, he found that the preparation required more care than he had at first thought, so he returned to cultures, using bouillon-cultures attenuated by heat. The use of the vaccine was put to a practical test in certain districts where anthrax had been particularly prevalent, and the results were very gratifying, the death-rate being reduced from 7.03 to twenty-four hundredths per cent. Chamberland collected statistics of ten years of vaccination by Pasteur's methods, and found that where the mortality had been about ten per cent. in sheep and five per cent. in cattle, it had been lowered to ninety-four hundredths per cent. in sheep and to thirty-four hundredths per cent. in cattle.

The first experiments in the serum-therapy of anthrax were published by two Japanese bacteriologists, Ogata and Jasuhara. They made two important discoveries which subsequent experiments by other investigators have failed to substantiate. They claimed to have attenuated the anthrax-bacillus by growing it in the blood-serum of resistant animals, as the frog, rat, and dog, and that mice inoculated with frog- or dog-serum before infection recovered and were afterward immune. Sclavo of Rome, using the blood-serum of goats highly immunized against anthrax, succeeded in conferring partial immunity, and announced that after infection the serum prolonged the life of the animals—several days longer than the control-animals.

The latest report comes from Marchoux, working under the direction of Roux. He finds that the serum of sheep, highly immunized by attenuated cultures, and subsequently by large quantities of virulent cultures, produces immunity in eight hours, but that it wears off in three days. It is also curative, and as long as there is no

marked edema in the animals treated the results are good. From ten to twelve cubic centimeters are used. After the edema becomes marked the cases are not amenable to treatment. Marchoux believes that the serum causes an increased action on the part of the phagocytes.

Hydrophobia.—The exact cause of rabies is undetermined. Fae, Babe, and Gibier all thought that they had demonstrated an organism associated with the disease, but later investigations have not borne out their reports. The toxic substance, or virus, as it is generally called, is found in the brain, spinal cord, nerves, and saliva of infected animals, and the disease is transmitted from animal to animal by inoculations of these. Pasteur in 1885 found that by exposing infected cords to the air their virulence was gradually lost, and he conceived the idea of producing immunity and curing the disease in a manner similar to his anthrax method. A glycerin-emulsion of a cord that has remained for twelve days in a dry atmosphere is generally used to begin with, and stronger and stronger cords are then used, until the animal can take an emulsion of the cord of a rabbit that has just died from the disease. Out of nearly a thousand cases treated during a period of five years, only fifty-eight have died.

The Italian, Centanni, succeeded in producing immunity by subjecting the cords to the action of an artificial gastric juice. After from twelve to twenty hours' digestion, the virus no longer kills, but produces immunity. In connection with Tizzoni, he succeeded in producing a blood-serum of high immunizing power. The dry precipitate of this, mixed with water, and injected into animals, produces immunity, and also exerts a curative effect on animals that have been bitten by rabid dogs.

The authors, as quoted by Sternberg, believe that this antitoxin possesses the following advantages over Pasteur's method: Applicability at any time during the period of incubation up to the moment of the appearance of symptoms of rabies; absolute absence of virulence or of any injurious action; very rapid treatment by the injection of one or several small doses of material; complete solubility, and consequently prompt absorption of the material, and its easy preservation in the dry condition.

Antitoxin prepared in this way has not been used on man as yet, but theoretically it seems very much better than the method now in vogue.

Malignant Growths.—A great deal of attention has been paid of late to the treatment of malignant growths by means of antistreptococcic and other serums. There has been considerable ad-

verse criticism from many good authorities, who decry the experiments as useless. Still, in view of the fact that we have no means of successfully combating cancers that are inoperable, the experiments certainly can do no harm, and may be productive of great good.

Among the earliest experiments are those of Richet and Hericourt, who have done so much original work in scientific medicine. They prepared antimalignant-growth serum by the following procedure: An osteosarcoma was taken and thoroughly rubbed up with water in a mortar, and then strained through a cloth. This was injected into dogs and a donkey, and after about ten days they were bled. The serum was obtained in the usual manner. In April, 1895, they reported the results of their labors to the French Academy of Sciences. They had used the serum on two cases successfully, one being a recurrent costal osteosarcoma about the size of an orange. After forty days of treatment with 3 c.c. of serum a day, the growth had been absorbed, as had almost all of the cicatricial tissue. The second case was one of a tumor of the stomach, about the same size, which also disappeared under treatment.

Subsequently, in October, 1895, the same authors reported the following results after having used their serum on a large number of cases:

There is a diminution of pain, the cancerous ulcers dry up, assume a healthy, granular appearance, and in some cases attempt to cicatrize. There is also a decrease in the size of the growth and of the enlarged lymphatic glands, and the evolution of the case seems to be delayed. So much for the good side of the subject. Unfortunately, after about two months of improvement, which takes place in four-fifths of the cases, the disease breaks out afresh; new foci form and death ensues.

A case which the writer treated by the antimalignant-growth serum, prepared after the manner given above, resulted as did the majority of the cases just cited.

Emmerich and Schall, at almost the same time that Richet and Hericourt made their announcement, came to the front with their new treatment of cancer, which consisted of injections of serum from sheep previously injected with virulent cultures of the *Streptococcus erysipelatus*. An injection of from one to twenty-five cubic centimeters of the serum, according to the size of the growth, was made directly into the neoplasm. They reported a diminution in symptoms and, in some cases, complete absorption of the growth.

A very bitter discussion has since followed in the German medical journals concerning the practicability of the cure. Angerer of Munich made an extensive report on all the cases he had seen it tried upon, and in every case recurrence eventually took place. Many other observers have reported recurrences and bad results, although occasional reports of improvement and cure continue to be made. In November last, in connection with Zimmerman, Emmerich modified his treatment by injecting with the serum pure cultures of the erysipelas-coccus thirty-six hours old. By this method he claims better results. The method of preparation of their serum is given in full in the *Deutsche medicinische Wochenschrift* for November 14, 1895.

Gibier deposited three years ago with the Academy of Medicine, New York, a sealed envelope containing the outlines of the application of serum-therapy to cancer and syphilis, and since then claims to have gotten good results in recent but as yet uncompleted experiments.

Glanders.—In addition to what has been said concerning the diseases in man, there remain a few notes on the researches on diseases of animals. Most important of these is glanders, as it occasionally occurs in man. Babes reports the cure of several cases by the use of mallein, but the remedy is not used to any extent in the treatment of this affection, as far as the writer is able to ascertain.

Mallein is a glycerin-extract, analogous to tuberculin, prepared from bouillon-cultures of the *Bacillus malleus* or, better, according to Koch, from the growth of potatoes. It is useful, too, in diagnosing incipient glanders in the horse, 1 c. c. injected subcutaneously causing a sharp rise of temperature to 40° C. within from fifteen to eighteen hours if the animal has the disease.

Pleuropneumonia in cattle is protected against by inoculation of serum from the lungs of an affected animal, or from the serum around such an inoculation. This is the outcome of a method used by the natives on the shores of the Zambesi, which was reported by Willems as early as 1852. The natives caused immunity in animals by forcing healthy animals to swallow the liquid from the pleural cavity of an animal recently dead from the disease. In France Pasteur's name is intimately connected with the researches on immunity in pleuropneumonia. The government has taken up the matter, and the disease is also protected against extensively in Australia and Southern Africa.

Foot-and-mouth Disease.—In this infectious disease of cattle and swine protection and curative

inoculations have availed nothing, although Behla claims to have produced immunity in young pigs and lambs by injecting filtered saliva from affected animals in two-per-cent. carbolic acid.

Chicken-cholera.—Chickens affected with this disease, which is too well known to need description here, due to the *Bacillus septicemia hemorrhagica* of Hueppe, can be rendered immune by vaccinating with attenuated cultures of the bacillus. The attenuation is produced by inoculating a rabbit, which will die from septicemia produced by the organism. The blood of the rabbit is then used to vaccinate the chickens. Kitt was able to produce immunity by injections of blood-serum from immune hens, also by inoculations with the albumin and yolk of their eggs.

Symptomatic Anthrax.—In this disease, caused by a spore-formation, vaccination has been done with great success, especially in Switzerland, where the disease is most prevalent. The method used is vaccination with powdered muscles of animals recently dead from the disease. This is attenuated by heat. The same result can be obtained by attenuated cultures.

Influenza, in the horse, a disease due to a small bacillus, described by Schütz, is treated by inoculations of the blood of horses recovering from the disease. Researches in this disease were carried on by the War Department of the German government.

Hog-cholera is a disease that, in connection with the swine-plague, has been the result of extended experiments by a number of investigators, among them Salander, Smith, and Metschnikoff. They succeeded in partially immunizing rabbits and guinea-pigs by using increasing doses of attenuated cultures of the organism, and also by using blood-serum from protected animals.

Hog-erysipelas.—The mortality of swine from hog-erysipelas has been greatly reduced in France during the past eight or nine years by using protective inoculations of attenuated cultures obtained by passing the organism through rabbits, which greatly reduces its virulence. This method is the result of the researches of Pasteur and his confrères of the Pasteur Institute.

Lorenz, working with the blood-serum of protected animals, succeeded in immunizing, for a short time, other animals. Unfortunately, a toxic substance was developed in the blood of protected animals, which killed the animals experimented upon.

Serpent-venom.—Another form of immunity is that to the venom of serpents. This has been the subject of successful investigation by Cal-

mette, of the Lille Pasteur Institute, and independently by Frazer, of Edinburgh. Calmette found that animals could be rendered immune in two ways; first by injection of small quantities of serpent-venom, or else by injection of venom modified by chlorid of gold or chlorid of lime. These animals can then take several times the quantity of the poison without its producing any marked effect. Their blood also exerts a marked antitoxic action, and blood-serum from them exerts a marked immunizing action. Calmette has on hand a quantity of this serum that he sends out to those desiring to test it. This is prepared from horses immunized against the venom of snakes. It keeps well in a cool, dark place. A small amount of camphor is added to aid in preserving it. His directions for the treatment of the tests are as follows: The limb above the bite should be tightly tied with a handkerchief. The wound should be washed with a 1-60 solution of hypochlorid of lime. The dose of the serum is then injected into the subcutaneous tissue of the belly. From 10 to 20 c. c. is a dose. In addition to this 8 to 10 c. c. of the hypochlorid solution is given hypodermatically about the wound. After this the tourniquet may be removed. Coffee should be given to the patient and friction practised. Ammonia and alcohol should be avoided, as they interfere with the action of the serum.

Frazer has also made extensive researches in this direction. His results are practically the same as those obtained by Calmette. One interesting thing he did was to immunize a pregnant cat. The kittens, to which she gave birth shortly afterward, were also immune.

Alcoholism.—Toulouse reported in March before the Biological Society of France his experiments in regard to the curative action of an anti-alcoholic serum. He gave two dogs 40 grams of alcohol for a week, and from them prepared a blood-serum. Of this he gave 24 c. c. to a patient suffering from acute delirium tremens. On the following day there was a fall in temperature, and the mind of the patient became clear. He is now attempting to discover whether this action of the serum was due to its being anti-alcoholic, or whether it is a quality inherent in all serums.

CLINICAL MEMORANDUM.

CASES OF HEMATURIA.

BY FREDERICK W. ROBBINS, M.D.,
DETROIT, MICH.

HEMATURIA, although only a symptom, nevertheless holds such a prominent place in the mind of the general practitioner as to be regarded frequently as a disease *per se*.

It should be noticed whether the blood comes with the first portion or last portion of urine, or be evenly mixed with the entire quantity; whether the urine be brown, dark, or light red. If the latter, and the hemorrhage is slight, the trouble is located in the bladder, or in front of it; but if the former, one cannot be certain that the bleeding is from the kidneys. If, however, pus be present, the location need not, as a rule, be looked for beyond the bladder. It is important to observe whether exercise has any effect in producing or increasing the hemorrhage. Such would be the case were there a foreign body in the kidney, ureter, or bladder; also, probably, if a well-developed malignant growth were present; but not in a tubercular kidney or bladder. Observe also whether the urine is perfectly clear at one time, and bloody at another; if the blood be evenly diffused or present in the form of clots.

Pain may be severe, acute, from plugging of the ureter with a clot, or the pressure of a sharp, foreign body, or dull grinding, or simply a sensitiveness on deep pressure. The kidneys should be carefully palpated, which can usually be accomplished if the patient lie on his back with his thighs flexed, and take a long breath, one hand being pressed in the flank up under the rib, the other down through the abdominal wall.

The general health and history of the patient must not be lost sight of, nor must the examiner fail to look for albumin, tissue-structures, and casts, with the microscope.

With all these points, and others, which are not mentioned, in mind, a diagnosis can often be arrived at, but even now uncertainty may exist, and it will be found desirable to complete the examination with the cystoscope. The four cases reported illustrate four types of hemorrhagic trouble, and have been under my care during the last three months.

CASE I.—Mrs. T., age twenty-three, seen through the kindness of Dr. Winter, her family physician. Father and mother in splendid health, and other family history good; personally, has been a robust girl, normal weight 120 pounds; was confined about a year previous to my seeing her; delivery normal; first noticed occasional hematuria and loss of strength the latter part of August; clots were passed, rather small and irregular in shape, and at times pure blood. The bleeding had become very free and almost continuous when I saw the patient February 5th; she was very anemic, and, although able to come to the office, quite weak, and she had lost twenty pounds of flesh; no cough nor symptom of general disease; could elicit no pain over the kidneys; passed water every few minutes, and the urine was mixed with pus and blood. These symptoms pointed to the bladder. Through the rectum I could feel nothing and resorted to the cystoscope for more light on this mysterious case, which I feared would prove tubercular.

I applied ten-per-cent. cocain-solution to the urethra, injected six ounces of water, after first washing out the bladder with a solution of boric acid, and a very clear picture presented itself. The summit of the bladder (mucous membrane) was red, and the capillary blood-vessels traversing the bladder, in various directions, were very beautiful. This condition is typical of a catarrhal cystitis. In

no other respect was the larger portion of the bladder at all normal, but when examining the trigonum there was plainly seen, near the opening of the left ureter, a spherical grayish mass, which, when the instrument was held quiet, gradually settled down, but when thrown into motion came into sight at the same spot as before as if held by a small pedicle. This was plainly seen at each of the sittings. The bleeding was in no way changed by examination, and a week later, after dilating the urethra, I introduced my index-finger and felt several soft papillomata, not, however, as large as I had expected from the cystoscopic picture. The summits of these growths were covered with a phosphatic deposit. After thoroughly curetting with a curette and my finger-nail, the pain and bleeding at once ceased. I have seen the patient a number of times since, and on May 26th she reported that there had been no pain nor hemorrhage since the operation; no loss of control of the urine; and, although she had had whooping-cough, she had gained sixteen and one-half pounds of flesh. There is still a slight amount of pus in the urine.

CASE II.—Mrs. P., aged fifty-three. Family history good. Has always been strong physically, except for several years, has been subject to rheumatic pains and torpidity of liver. Saw her first February 4, 1896; stools clay-colored; conjunctivæ yellow; urine is slightly brown, and contains blood-cells. At times blood is abundant, at other times urine is perfectly clear. Patient has absolutely no pain, and only an occasional small blood-clot; no enlargement of kidney; very slight sensitiveness on deep pressure over right kidney. Exercise did not seem materially to affect the hemorrhage, as keeping her in bed for two weeks made little, if any, difference. Cystoscopic examination showed blood coming from the right ureter. First I gave ergot with no effect, then gallic acid with same result, and then I grasped the true condition and gave large doses of sweet oil and alkaline waters with the salicylates and colchicum, which resulted in a gradual return to health. March 24th, stools are normal in color, also the conjunctivæ. The urine is still bloody at intervals of several days. One passage may be clear, and suddenly, with no evident cause, the next bloody. No pain, appetite good, and weight normal, 140 pounds. April 6th, patient nearly well; is drinking large quantities of Geneva water.

May 25th, perfectly well; urine normal since last report; fingers and toes slightly swollen—gouty, I believe; rides her wheel as easily as ever. My diagnosis in this case was that in a gouty individual there was catarrhal occlusion of the bile-ducts and congestion of the liver and kidney, with rupture of the small vessels in the kidney.

CASE III.—April, 1896. Mr. P., aged twenty-nine; carpenter; married eighteen months; father and mother healthy. Three years ago he had malarial fever, since which time he has passed urine frequently. He first noticed hemorrhage before marriage; no venereal history. At first bleeding was slight and lasted about a week. During warm weather he has comparatively little hemorrhage, but it is severe when he is chilled. He now urinates every two hours; no clots. Blood well mixed with urine, sometimes red, at others, brown; pain over both kidneys, although not of the same severity at all times. Pain and

hemorrhage have been continuous for three weeks; pulse, 116; temperature, 98.6°; very thin, and has slight cough. Patient is extremely nervous, has twitching of the eyelids, and can sit still but a few minutes at a time. Cystoscopic examination, under influence of cocain, produced very little pain, and no bleeding followed, although the bladder was irritated with the back of the instrument. Examination negative. Dr. F. Maas had previously found tubercle-bacilli in the urine. Diagnosis, renal tuberculosis.

CASE IV.—Mr. M., aged seventy-two. General insurance. April 10th. Three years ago I treated Mr. M. for a severe colic (renal). He recovered nicely, and one year ago had an attack of hematuria lasting for a few days only, and believed to be the result of acute renal congestion from a cold. A week ago he had what he thought was blood in the urine in the morning. In the afternoon he came to me and the urine was perfectly clear, with no albumin, casts, or cells present. Urine passed at office yesterday, six days later, was slightly cloudy, and this morning reddish-brown, with much albumin, blood, and tissue-cells present. Sound detected nothing in bladder, but right kidney is enlarged, reaching nearly to crest of ilium, hard, and nodulated, but freely movable. In general condition he is thin and very anemic. Has been growing weaker for several months, but has been attending to office duties.

Later in April Mr. M. had a severe attack of pain, during which the pulse went down below 50, and became very weak and irregular.

Diagnosis, carcinoma of kidney, but on account of his age and anemic condition an operation was not urged. Dr. McGraw of Detroit and Dr. Henrotin of Chicago concurred in the diagnosis and advice.

MEDICAL PROGRESS.

Operation for Luxation of the Peroneal Tendons.—Tendon-luxations are rare conditions, but when they do occur they are troublesome to treat. The peroneal tendons are most apt to be affected on account of their length and the angle at which they bend about the external malleolus, this being about 160°. If the groove in the bone is shallower than usual a predisposing cause exists which can be overcome only with difficulty. The tendons slip out under the influence of a sudden strain in the positions of abduction, pronation, and extension. There is a tearing sensation as the fibrous sheath gives way, and walking is possible, though painful. Rest and bandaging for five or six weeks may serve to reestablish the tendons in position, but relapse is likely to occur. For habitual cases operation offers the only hope of cure. The tendons have been kept in place by an artificially stitched sheath, and in one instance the periosteal groove was divided and reflected, the groove chiseled deeper, and the periosteum replaced. But a much simpler and very ingenious operation has been devised by Kousmine of Kazan, and a case upon which it has successfully been employed is reported in the *Revue de Chirurgie* for September, 1896, by his assistant, Perimoff. The periosteum of the external malleolus

is first exposed and then a narrow trapezoid piece of periosteum and bone is elevated into a perpendicular position. The base of this flap is the posterior margin of the external surface of the external malleolus. The dressing of plaster of Paris was changed on the seventeenth day, the nails removed, and a new splint applied. The recovery was such that the patient, who had been prevented from walking by pain and lack of control over his foot, occasioned by the constant slipping of the tendons, was enabled to walk without discomfort and the tendons did not again slip out.

Operative Surgery in Phthisis.—In an article published in the *Mittheil. aus d. Grenzgebiet d. Med. u. Chir.*, Bd. I, Heft 2, QUINCKE discusses the pros and cons of operations upon the tuberculous lung. The following procedures have been employed: (1) Aspiration of abscesses and injection of medicinal agents have been performed rarely and with doubtful results. (2) In ten cases an abscess-cavity has been opened and drained. In one case only was the operation carried out in two stages. In only three of these ten cases did the wound heal. In others a sinus persisted, or the patient died of extension of his disease, or was lost sight of. In several instances drainage was unsatisfactory on account of the situation of the fistula. (3) Excision of the affected portion of the lung has been performed by Lawson, Tuffien, Reclus, and Doyen. This is a dangerous operation, and even if successful the prospect for radical cure is remote. (4) In light of this experience the author recommends an operation intended to favor the spontaneous closure of an abscess-cavity. Such operative assistance has been rendered in two instances in which the surgeon has resected portions of the neighboring ribs without opening the cavity. The hope was that when the bony, resisting thorax-wall was removed from over the abscess, cicatricial contraction in the lung would be found. One of the patients operated upon was cured, and the other showed an improvement, but died ten months later during the administration of chloroform previous to the opening of a new-formed abscess. Quincke recommends this last form of operation.

THERAPEUTIC NOTES.

Croup and Diphtheria in Austria.—The Vienna correspondent of the *Münchener medicinische Wochenschrift*, June 30, 1896, p. 625, relates that during the month of February, 1896, 4424 cases of croup and diphtheria occurred throughout the whole of Austria, with 982 deaths—22.1 per cent., and 895 remaining under treatment. Among 1128 of this number treated with the antitoxic serum there were 149 deaths—13.2 per cent., while among 1845 treated otherwise there were 704 deaths—38.1 per cent.

The Treatment of Diphtheria With Antitoxin.—DUPUY, (*Progrès Médical*, 1896, No. 27, p. 3) relates that from the year 1889 the mortality from diphtheria at Saint Denis gradually declined until 1893, when it commenced again to rise. During the first three quarters of the year 1895

there occurred only twenty-six cases, with three deaths. In June and September there were no cases at all. In October there were three, in November seven, and in December twenty-four. In January, 1896, there were sixteen. Of these last fifty cases diphtheria-bacilli were found in forty. These cases were isolated and treated with the antitoxin, with a mortality of fifteen per cent., as compared with previous records of sixty-six per cent. The six fatal cases were all of grave type, and would have elicited an unfavorable prognosis under any treatment.

Protophen is the name given by BLUM (*Berliner klinische Wochenschrift*, 1896, No. 27, p. 601) to a group of soluble, incoagulable albuminoid bodies, prepared synthetically by the action of formaldehyde upon serum-albumin and ovalbumin. A study of ovoprotogen shows that this substance is readily absorbed and well tolerated, and that it is capable of acting as a source of heat and of nitrogen for the body. It has the great advantage over ordinary albumin of being soluble in hot and cold water. Experiments upon dogs show further that by means of the subcutaneous use of protogen it is possible to maintain the bodily nutrition for at least a considerable time.

Incontinence of Urine and its Treatment by Suggestion. As the result of a clinical study CULLERRE (*Archives de Neurologie*, 1896, No. 7, p. 1) has reached the conclusion that essential incontinence of urine in children and adolescents is a neuropathic stigma, in general, benign but which may be at times the precursor of nervous disorders more or less grave, as neurasthenia, hysteria, hypochondriasis, mental obsession, with preoccupations, or fixed ideas, relative to the urinary function. The patients usually belong to families in which the neuropathic tendency appears in various forms, but not especially as mental alienation. They often display evidences of degeneration, physical and moral. Incontinence of urine is transmissible by heredity. Incontinence of urine is the result of a psychic disturbance similar to that observed in hysteria. The mechanism of the development of this morbid phenomenon appears to consist at the beginning in a sort of cerebral distraction. The center controlling the act of micturition fails in its function, or is uninfluenced by the medulla, or is, perhaps, inhibited by some peripheral excitation. This phenomenon, impressed upon the imagination of the subject, induces constant preoccupation which enters into the subconscious psychic sphere and provokes autosuggestions or impressions that aggravate the disorder and increase the frequency of its occurrence. Hypnotic suggestion is the most rational as well as the most efficacious mode of treatment, leading to recovery in seventy-five per cent. of cases. The degree of hypnosis is of little significance. A state of simple psychic passivity, with the eyes closed, may be sufficient. The treatment is efficacious at all ages, but the result appears to be the more certain the older the patient. Even in those not cured the influence of suggestion is evident, but it is neutralized by autosuggestions. In these patients the nervous disturbance is more profound, and hysterical stigmata are often present. Medicinal or surgical treatment when efficacious is so through indirect suggestion.

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SATURDAY, NOVEMBER 21, 1896.

ROOSEVELT HOSPITAL AS A PRIVATE SANITARIUM.

"THE Trustees of Roosevelt Hospital have completed and equipped a Private Patients' Pavilion for the treatment of surgical, gynecological, and medical cases under the most approved conditions. Care has been taken to furnish the rooms in such a manner as to render them cheerful, homelike, and attractive to those of the most cultivated tastes."

Such is the announcement which the trustees of this hospital have recently distributed generally to the medical profession and laity of New York. In accordance with the modern commercial custom of retail stores, and especially mammoth, omnivending caravansaries, an "opening day" is also announced, on which day "single rooms and rooms *en suite*" will be on exhibition. "You and your friends, ladies included, are cordially invited to visit and inspect."

In all candor and honesty of motive we humbly ask in the name of public charity what imperative exigency can induce the managers of a great public hospital, built and endowed with money

consecrated to benevolence and charity, to use those funds to build and equip sumptuous accommodations for the wealthy classes, who alone can afford to occupy them? And with equal sincerity, in the name of the medical profession, we ask why such inducements should be held out to private patients to leave their usual medical adviser for the purpose of securing these luxurious accommodations?

THE DISSEMINATION OF SYPHILIS.

BAYET has been investigating the origin and spread of syphilis in Brussels and, at the last annual session of the Royal Society of Medical and Natural Sciences of that city, he reported his conclusions, which may well be called startling. In Copenhagen and Berlin, where exact statistics of the disease are kept, there are over four new cases annually to every one thousand of the population. And since most of these are about twenty years of age, they may be said to have an average of thirty years yet to live, which would place the figures for the total syphilitics of Berlin at any one time at 150,000, a tenth of the population. When one considers also that many cases are never treated, and that from one-fourth to one-fifth of cases of tertiary syphilis deny all acute symptoms, it is no wonder that Bayet concludes that syphilis holds the second place as a cause of sickness—surpassed only by tuberculosis.

In 114 instances of recent syphilis which came under his personal observation in Brussels, the history of contagion was obtained, and in only thirty per cent. was it found that the syphilis had been acquired from prostitutes, while in fifty per cent. it was obtained from waitresses in cafés, and women who were described as being "off color," *de mœurs légères*, though not subject to police inspection. In the remainder of the cases the infection was attributed to wives, mistresses, and others.

Bayet is of the opinion that if the class of women (waitresses, etc.), which stands on the border line of prostitution, and which was responsible for the infection in half of his cases, could be brought under governmental supervision, syphilis in Brussels would diminish. This does not seem so clear from his own figures, for the low percentage of cases derived from prostitutes seems

due not so much to their freedom from the disease, as to their small number, for, at the time of his investigation, there were only 200 in the whole city, while the number of women in his second group must have exceeded that figure many times.

FILTRATION AND THE LOUISVILLE WATER-SUPPLY.

DR. W. D. WHITE, Health Officer of Louisville, has published a small pamphlet—a reprint from the *American Practitioner and News*—in which he discusses the necessity of filtration in the treatment of water-supplies derived from the great rivers. He says of the supply of Louisville, taken from the Ohio River, that in its unpurified condition it cannot be classed among safe potable waters. Before it reaches Louisville, the Ohio River receives the sewage and surface-drainage from many cities and towns, aggregating a population of, probably, two millions of people. The result of this contamination is forcibly illustrated by the vital statistics compiled from official reports of health departments. Of the three principal cities taking their water-supply from the Ohio River or its tributaries, the death-rates from typhoid fever are reported to be, for the calendar year 1895, Pittsburg, 77 per 100,000 population; Cincinnati, 36 per 100,000 population; Louisville, 77 per 100,000 population.

On the other hand, in New York, Boston, and Brooklyn, which depend upon impounded water gathered in large reservoirs and carried in storage for many months, the typhoid-fever death-rates are by the last reports: New York, 17 per 100,000 population; Boston, 28 per 100,000; Brooklyn, 16 per 100,000 population. And in Vienna and Munich, where the water is obtained from springs in mountainous districts, the death-rate from typhoid is reduced to 7.0 and 7.1 respectively per 100,000 population.

Sedimentation and filtration may not furnish chemically and bacterially pure water, but, viewed from a practical standpoint, water thus treated will be so purified and disease-germs so much arrested that at present this method commends itself as the best means of purification. The introduction of filters at Hamburg is credited with reducing the death-rate in typhoid fever

from 28 to 6 per 100,000 population. After the filters of the London waterworks were operated to meet the requirements of a bacteriological standard, the typhoid mortality was reduced from nearly 90 deaths per 100,000 of population for the decade 1860-70, to 24 for the decade 1870-80, to 19 for the decade 1880-90, and finally to 15 per 100,000 of the population for the period of 1890-94. In the recent discourse by Dr. Frankland before the Royal Institute of London, referring to the uniformly excellent filtration that had been reached in the water-supply of London since filtration was made compulsory in 1856, he said: "The effect of sand-filtration, as carried out by the London water companies, upon the living matter contained in raw water was simply astounding. A single drop of unfiltered Thames water sometimes contains nearly three thousand separate living organisms, but after filtration, only two or three can be found, and sometimes the filtered water is absolutely sterile." Mr. Hazen, late chemist of the Massachusetts State Board of Health, states: "In parts of Germany where the water is of exceptional purity and under governmental control, typhoid fever has nearly ceased to exist." The change of source from the two-mile to the four-mile intake-crib of the Chicago water-supply reduced the typhoid-fever death-rate from 104 in 1892 to 42 and 31 in 1893 and 1894 respectively, per 100,000 population.

The Louisville Water Company is at present making tests of the various systems of filtration, and is exhibiting a commendable desire, by persistent and intelligent investigations, to ascertain the best method of purification, with the purpose of constructing a filtration-plant that will supply a quality of water equal, as far as practicable, to that of any large city in the country. It is somewhat startling to know that Louisville still has such antiquated facilities as wells and pumps, of which there are 653. Their condemnation and destruction cannot come too quickly.

RECENT PROGRESS IN DERMATOLOGY.

ALOPECIA AREATA.

Is alopecia areata a nervous disease of the scalp, or is it due to a parasite? This question has been much discussed, and now Sabouraud, to

whom we owe so much for his investigations of ringworm, endeavors to answer it in a series of papers in the *Annales de Dermatologie et de Syphiligraphie*, 1896; vii, 253, et seq. He firmly believes that the disease is contagious, and that barbers' instruments are the most common carriers of the contagion; but as customers come and go from one barber to another, it is difficult to trace each case to its source. Starting with the theory of the microbic origin of the disease, Sabouraud has worked out a strong chain of evidence in its support.

He tells us that the typical hair of alopecia areata is found at the edge of an advancing patch, and is a stump of long hair that has remained in the scalp. It is club-shaped, or like an interrogation point. Its diameter becomes less as we go toward the root, and its color is lost. These hairs are always a sign of an advancing patch, and are not found in old patches. The medullary canal of these hairs is normal above, altered in the middle, and completely wanting at the root. The root is not bulbous and hollowed for the papilla, but in the form of a turnip. The fact that the hair changes from above downward, from a normal to a lanugo hair, is evidence that there is a progressive atrophic change in the papilla. Clubbed hairs are seen in other diseases of the scalp, but they are not friable like those of alopecia areata, in which the hairs split both transversely and vertically. In the frayed and broken hairs we often find the microbes commonly found in seborrhea. These are not the cause of the disease.

A study of the terminal period of the disease, when the hair tends to reform, shows that many hair-follicles have completely disappeared. Around the remaining ones the connective tissue is thickened, crowded, strewn with connective-tissue cells. At the base of the old follicle there are a great number of flattened, degenerated cells—*mastzellen*. Many of the hairs are in process of regeneration, and about them the sebaceous glands are large, sometimes enormous. The pigment-function of the skin remains suspended until complete recovery of the patch.

In the stage of complete absence of hair, a sheath of migratory cells encloses each hair-follicle, giving the appearance of a special folliculitis

causing the disease. A hard and dense connective tissue about the follicles is a further sign of an inflammatory process. About one-third of the abnormal cells are *mastzellen*, which are found through the whole preparation always about the vessels, and specially about the hair-follicles and sweat-glands. These indicate a trouble with the nutrition, and that alopecia is not a disease of the hair, but of the skin of the hairy regions. Microbes are rarely found except when due to irritant treatment. It is probable that the interference with the hair-formation is due to a toxin developed from a microbe, which may be present at a distant part. In the upper one-third of the diseased follicles, between the junction of the sebaceous glands and the follicular orifice, there is a very equal ampullar dilatation about three-tenths of a mm. wide and one-half mm. high. The follicular orifice is of the usual size. Its upper end appears like a cupola, pierced by a round window. The sides are formed by the follicular walls, whose mucous layers are extremely flattened and atrophied. Its lower end is rounded, or slightly conical. Just below it the excretory duct of the sebaceous gland and the follicular canal merge together. This formation, Sabouraud names the *utricule peladique*. He regards it as characteristic of the disease, specially in its earlier stages, as when actual baldness sets in the shape of the utricule is already deformed. As we pass away from the bald area out into the surrounding skin, follicles in course of renovation become less numerous, and dead hair with full bulbs more abundant. Utricles that are full and closed are found among the sound hairs. They are filled with joined strata of epidermic cells, and contain in their centers, like a larva in a cocoon, compact clusters of microbes, a pure culture of the smallest bacillus known. It is constant in the utricule, and is named the microbacillus of the *utricule peladique*. It is almost punctiform in size. As it grows old it may be one-quarter mm. wide and one-half to one mm. long, and comma-shaped, or bent. The young bacilli are a little swollen in the center, and their ends are blunt. Usually they are neither agminated nor in chains. Each utricule contains millions of them. As long as the tops of the utricules re-

main uninjured the bacilli remain pure, otherwise there is a mixture of microorganisms. Exceptionally they are found in follicles that contain some remains of hair, but they rarely come into contact with the hair. This bacillus is regarded as the probable cause of the disease.

Sabouraud's theory is that the hair-follicles are invaded by this bacillus and the utricule formed. In a few days reaction about the utricule shows itself by the afflux of round mononuclear cells, which form irregular strata about the same. Then a mass of the same sort of cells collects about the vessels, from which they escape by diapedesis. Soon the follicles, both within and without the utricule, become surrounded by a thick mass of the same sort of cells, mixed with which are some *mastsellen*. Then progressive atrophy of the hair-follicles takes place, the papillæ die, and the hair is expelled. Now the utricule has lost its proper microbe, and becomes the habitat of various microbes. After a variable time the process ceases, and restitution may take place. This course of events shows the uselessness of local antiseptics in treatment, as when the bald patch is present there are no proper bacilli to act on. It indicates the usefulness of revulsives to hasten regeneration of the hair, and of epilation about the patch, and disinfection of the skin in the neighborhood of the patches.

It is not claimed by our author that this bacillus is proven to be the cause of the disease, but only that it is the *probable* cause. Certainly suggestive of the casual connection is the fact that it is abundantly present during the spread of the disease, and disappears when baldness is established. At present it cannot be distinguished from that of Unna and others, which is found in comedo, acne, and fatty forms of seborrhea.

This contribution of Sabouraud's is one of the most important of recent years. Of late the opinion has been gaining ground that in some cases alopecia areata is contagious, and probably parasitic. If his observations are found to be correct by the investigations of himself and others, we shall have another disease to add to our growing list of parasitic diseases, and a clearer idea of what we must accomplish therapeutically.

GEORGE THOMAS JACKSON, M.D.

ECHOES AND NEWS.

Starvation in London.—Seventy-one persons died of starvation in London, England, in 1895.

Long Island College Hospital.—The Chair of Medical Jurisprudence in this institution has been accepted by Judge Willard Bartlett, in the place of the late Judge Calvin E. Platt.

Newark's New Hospital.—The city hospital which Newark proposes to erect, at a cost of nearly \$300,000, will be built very soon, as the contractors' estimates are now in the hands of the building committee.

Sir William MacCormac.—Sir William MacCormac, who has been ill with pneumonia, continues to have fever and suffers great prostration. His illness is a source of much anxiety to his many friends and admirers.

Cerebro-spinal Meningitis in Berlin.—For several years Berlin has enjoyed a respite from the ravages of meningitis, but during the last few months it has reappeared, and is attracting the studious attention of her physicians.

Colored Nurses.—The New Orleans University Medical School has in contemplation a plan for establishing a training-school for negroes. The suggestion has received cordial support, and there are good reasons for believing that the undertaking will succeed.

The Stille Medical Society.—The Stille Medical Society of the University of Pennsylvania has in press an elaborate history of its work for the last twenty-one years, and complete statistics of its members, among whom are some of the most prominent of Philadelphia physicians.

Another Object-lesson.—In Spain there exist no laws making vaccination against smallpox compulsory, and in consequence her capital is now sorely afflicted with this disease. The chief fatality occurs among young children, in the majority of whom vaccination has been wholly neglected.

Aldermen Blocking Sanitation.—The Brooklyn Board of Aldermen has refused to approve the bill of \$7000 which Health Commissioner Emery contracted at the direction of Mayor Wurster during the warm weather, when he was obliged to employ experts to examine into the condition of the water.

The Mutter Lectureship.—The thirteenth course of the Mutter Lectureship, consisting of ten lectures on surgical pathology by Dr. Oscar H. Allis of Philadelphia, began in the hall of the Mutter Museum, Philadelphia, on November 18th, to continue till December 16th. The subject is "Dislocation of the Major Joints."

Rinderpest in South Africa.—The Governor of the Cape Colony has engaged Professor Koch, the bacteriologist, and Dr. Kohlstoher, the German medical adviser for East Africa and the tropical malaria regions, to go to South Africa to investigate the causes of the rinderpest, which has become wide-spread in South Africa.

A New Chemical Element.—M. Barrière believes that he has discovered a new chemical element in the course of his investigations in monazite-sand, and has named it lucium. It does not form insoluble salts when coming into contact with either sodium or potassium sulphate. Its spectrum resembles somewhat that of erbium.

A County Sued for an Error in Diagnosis.—Agents of the County Health Board decided that Charles Schulz of Union Hill, N. J., and his family had smallpox, and sent them to the hospital for contagious diseases at Snake Hill. The medical authorities at the hospital discovered no symptoms of the disease, and Schulz now sues for \$7000 damages.

Jenner Centennial Celebration in Russia.—The coronation of the Czar so preoccupied the attention of the Russian people that it was decided to postpone from May to December the centennial ceremonies celebrating the discovery of vaccination. The 3d of next month, accordingly, has been selected, and it is hoped that the Czar will publicly participate in the rejoicing.

The X-ray Surpassed.—It is unofficially announced in Paris and Vienna that a ray with far greater penetrating power than that of Röntgen's has been discovered by Professor Donneun de Syke. Photographs are said to have been taken through a plate of iron eight inches in thickness, and many other substances that are opaque to the X-rays offer very slight obstruction to the passage of this new form of radiation.

A New Scottish Medical Journal.—The desire expressed by Scottish members of the medical profession for a fuller representation of Scottish work and teaching in all departments of medicine has culminated in the determination to launch the *Scottish Medical and Surgical Journal* in January, 1897. It will be issued monthly, and will be edited by Dr. William Russell, assistant physician to the Royal Infirmary, Edinburgh.

Our Profession Unappreciated.—Many physicians in Russia charge only 15 cents for a consultation and, although their number is small, suicides are frequent among them, the cause being inability to make a living. It is to be hoped that not the least of the benefits to grow out of the approaching meeting of the International Medical Congress, at Moscow, will be an elevation of the medical profession in the estimation of this nation.

Jefferson Medical College.—Mr. William Potter who has just been elected President of the Jefferson Medical College and Hospital, at Philadelphia, was United States Ambassador to Italy during a part of the Harrison administration. He was born in 1852, was educated at the University of Pennsylvania and abroad, and for the eighteen years before 1892 was his father's partner in a large manufacturing business in Philadelphia.

Medical Students and Temperance.—The British Medical Temperance Association recently gave a breakfast to the medical students, at which all the medical schools of London were represented. Sir B. W. Richardson, who pre-

sided at this function, stated that within the last five months eighty-eight medical students had been enrolled as associates, and that all were total abstainers. A prize of £5 is offered by the association for the best essay by a student upon "The Action of Alcohol on Digestion and Nutrition."

Unnecessary Extravagance.—The Health Board of Paterson, N. J., has received permission from the Public Library to destroy all books belonging to the latter that are found at any time in the hands of those suffering from infectious diseases. It has been conclusively demonstrated, as shown by an article in the *MEDICAL NEWS*, August 8, 1896, p. 152, that books may be easily, quickly, and thoroughly disinfected by formalin-vapor. It is no longer necessary, therefore, to destroy valuable books that have been exposed to infection.

Obituary.—Dr. Thomas H. Burchard died in New York November 14th. He was the son of the late Rev. Dr. Samuel D. Burchard, and was born in New York in 1850. Dr. Burchard was a graduate of Bellevue Hospital Medical College, was for a time house-surgeon at Bellevue, and was surgeon of the Twenty-second Regiment. He was made chairman of the Civil Service Commission at its first organization in the State of New York. At the time of his death he was lecturer on surgical emergencies at Bellevue, and attending surgeon at the City Hospital on Blackwell's Island. As early as 1873 he advised the removal of the vermiform appendix in acute perforative perityphlitis.

Cottages for the Insane.—The contract has been let for the erection of seven cottages at King's Park, L. I., for the reception of the insane patients who now overtax the capacity of the Long Island State Hospitals. The so-called cottages are to embody the most modern ideas in the facilities furnished for the care of mental patients, and their appointments will leave nothing to be desired from a scientific and sanitary standpoint. They will accommodate 864 inmates, and are to be completed in about eighteen months. According to the agreement made by the Commission in Lunacy, the Flatbush Asylum must be vacated in five years, which will probably lead to an extensive use of the cottage-system if the present experiment proves the promised success.

A Tribute to Vaccination.—Another proof of the value of vaccination comes from the Indian School at Carson, Nev. When the school reassembled in the fall of 1895, it was found that several pupils had, during vacation, been exposed to smallpox and had returned to school before it had developed. Every one in the school was immediately vaccinated, and the two pest-houses, hastily constructed, were soon filled with twenty-three patients. As many more with a mild form of the disease were cared for in the school-hospital. Many were quite sick, and yet not one case was fatal, and the school was continued throughout the year. Later came an epidemic of la grippe, which in six cases developed into consumption, of which four have died, and the other two can live but a short time.

The Estimate of Ginseng in Asia.—*The Lancet* is authority for the following statements concerning ginseng: It is regarded as the panacea throughout Eastern Asia, and is esteemed as a universal remedy, far above powdered tiger-teeth, the scrapings of young deer-horns, or even broth made from dog's flesh. Ten large and eight small sticks of ginseng, weighing collectively nine and one-fifth ounces, cost in the Chinese market nearly \$1700. The wild plant is preferred, and is worth its weight in gold. Chinese farms devoted to its culture are most carefully supervised by watchmen employed night and day. A decoction is made from the root that is prescribed in all cases of debility, but it is chiefly prized for its aphrodisiac effect. A fortune awaits the enterprising American who will furnish the Chinese market from the abundant fields of our Southern States.

Unhealthy City Bake-shops.—The Bureau of Statistics of Labor of the State of New York has just issued its thirteenth annual report, which deals at more length with the bake-shops in New York City particularly than any other branch of industry. The report says that fevers, contagious and uncontagious, prevailed among many of the bakers who worked in basement- or cellar-bakeries; that most of the latter were unhealthy, and many of them very filthy. Since 1895 there has been legislation which tends to remedy some of the evils complained of. No new cellar-bakeries can be established, and there are laws regulating the sanitation, height of ceilings, hours of work, and other matters. The Board of Health of San Francisco is making vigorous efforts to remedy the same evil. It would seem that the dirty bakery, with its attendant evils, is the rule rather than the exception.

Bacteriology as a Regular Part of the Curriculum.—A very spicy bit of writing is the following, in the *London Lancet*, by a "General Practitioner"—not that he loves bacteriology more, but that he loves the medical politician less: "Bacteriology has been revolutionizing surgery and medicine for the last twenty-five years, but its study is not yet included in our curriculum, and the demand for its inclusion even now sounds rather like the voice of one crying in the wilderness. The threatened creation of a handful of opponents in the shape of registered midwives raises a prompt and spontaneous whirlwind of agitation. We are too commercial, and much too unscientific, or our souls would be stirred more over bacteriology and less over midwives. It is almost incredible that a subject of such vital importance should remain unrecognized so long. Will our grave and reverend seniors wake up of their own accord, or will they wait for the great British public to shake them?"

Street-cleaning and the Press.—Most men with a mission are misunderstood by the tradition-ridden public, and not infrequently are held to account for the deeds of fanatical followers, for which they are not directly responsible. In the criticism of Commissioner Waring given below, the *New York Press* would have been more in accord with reliable observation had it avoided the insinuation of incapacity on his part: "The Anti-Rubbish Association's work

is possibly of sufficient aid to the Street-cleaning Department to warrant Colonel Waring's tribute of 'immense.' But is it desirable, even in aid of so worthy a cause, that little children should pick up the decayed vegetables and other dangerous objects with which his department is unable to deal?" Whatever varying opinions may be entertained as to methods, no champion of cleanliness, no advocate of sound sanitation, and certainly no observant physician, would withhold the just meed of praise from a department bravely battling in a cause that makes, more than all else, for our municipal purity, prosperity, and progress.

CORRESPONDENCE.

THE FRENCH SURGICAL CONGRESS.

PARIS, October 26, 1896.

Last week the French Surgical Society held its tenth annual session here and discussed some of the questions that are interesting French surgeons just now. One is, and yet is not, surprised to find that the general topics of discussion are about those that would come up under the same circumstances in the United States, though a patriotic American cannot help feeling that it is the more advanced phases of these same surgical questions that divide opinions with us.

The President's opening address was on a sepsis, its methods and technique, and its results. He hailed with pleasure its gradual substitution for antisepsis in France.

The second day was taken up with a discussion of the treatment of clubfoot. There were many arguments pro and con regarding the employment of Phelps' method and modifications of it. As in Europe generally, French orthopedists are divided rather sharply into two schools. The one holds, as Martin of Geneva put it at the Congress, "that operations are almost never necessary for patients under ten years of age, graduated manipulations, properly directed exercise, massage, and electricity, with carefully fitted apparatus, being all-sufficient," or, as Redard insisted, "that operations for clubfoot are very much abused, and that all that is needed at most is forcible correction under an anesthetic and then apparatus." The other school was well represented by Championnière, a surgeon rather than an orthopedist, who removes or sections everything that will prevent correction, begins passive movement as soon as the wound is healed, and never uses apparatus. Professor Péan was almost alone in the opinion that the proper course was the happy medium between these extremes—the judicious blending of operative and mechanical procedures that is almost the universal teaching of American orthopedic surgeons.

Dr. Chipault of Paris described his method of "apophyseal ligature" for the correction of spinal curvature, whether kyphotic or scoliotic. He fastens a wire suture to the vertebral apophysis, just above the deformity, and then passes it successively around each of the displaced apophyses while the spine is extended by two assistants, one holding the patient beneath the axillæ, the other by the feet. The vertebrae are thus wired into position and careful precautions taken to keep them there until the

tendency to deformity is overcome. The procedure has given excellent results in rachitic and scoliotic curvatures and in the first stages of Potts' disease.

Dr. Larger (of Maison Lafitte) presented two patients on whom a new method of cheiloplasty had been performed. In one, from whom one-third of the lower lip had been removed for epithelioma, the result was excellent, and the patient could even *whistle*. In the other, two-thirds of the lower lip had been removed, and the functional result was perfect; the deformity was only slightly noticeable. He takes a flap from the upper lip by an angular incision to and from the ala nasi, making a new angle to the mouth. The procedure has been done on both sides by Guinard, after complete removal of the lower lip, with very satisfactory cosmetic effect.

Dr. Schwartz of Paris reviewed the twenty-four cases of successful suture of large veins so far reported, and added a case of suture of the lateral sinus done during the course of a trephining operation, with no untoward symptoms afterward, and every reason to believe that the sinus had been left patulous.

Dr. Abadie of Paris called attention to the fact that in exophthalmic goitre the vaso-dilators seem to be disturbed only in the region supplied by the cervical sympathetic, notably in the thyroid itself and in the exophthalmos. He suggests that these disturbances, as well as the tachycardia, may be due to irritation of the cervical sympathetic.

Dr. Jonnesco of Bucharest reported two cases of removal of the cervical sympathetic from the superior to the inferior cervical ganglion, inclusive. In both cases there was immediate amelioration of all the symptoms, and so far there has been no relapse. In neither case have there been any physiological symptoms caused by the removal, no anomalous sweating nor flushing, and no vomiting.

Dr. Kocher of Berne, in the discussion of Jonnesco's report, said that he had had a number of excellent results from the removal of the thyroid in exophthalmic goitre. Where the prominence of the eyeballs leaves the cornea unprotected and liable to slough, some operation like this should be tried.

On Friday Dr. Kocher did a radical cure for hernia by his method before the members of the Congress, at the Necker hospital. It commends itself by its simplicity and, as Kocher has reported six hundred operations for radical cure, the last two hundred without a death, and as a relapse is a rare thing in his practice, it is very generally interesting. He frees the sac and brings it out through a new opening made in the line of the groin, a little above the internal ring, and sutures it there. He thus obliterates completely the peritoneal fossa that normally exists at the orifice of the internal ring, and stretches the peritoneum tightly over the orifice by traction on the sac. He then simply sutures the wound made to expose the sac. The operation takes but a few minutes.

After having used the Murphy button a good deal, most of the French surgeons are now using suture methods for intestinal anastomosis, and abandoning the button. This is especially true for gastro-intestinal anastomosis.

The last two days of the Congress were given up to the discussion of gynecology, and it seems to be as true in France as it is in America that

"Das Ewig-weibliche Zieht uns hinan," for while many of the preceding sessions had been attended sparsely enough, the gynecological discussions were before a packed amphitheater.

The great question that divided opinions was, "Whether the vaginal or abdominal routes should be used in gynecological operations, especially as regards removal of the uterus." The greater safety of the vaginal operation makes it by far the most popular in France, and fibroid tumors that extend up to the umbilicus even are removed piecemeal through the vagina. It is not an esthetic operation to see; it is a bit of extremely hard manual labor to undertake in a warm operating-room; the general effect on vaginal tissues, as regards stretching and injury, must be worse than protracted, severe labor, but it gives excellent results, and is constantly growing in favor.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting October 19, 1896.

JOSEPH E. JANVRIN, M.D., President.

CHARLES H. CHETWOOD, M.D., read a paper on THE TREATMENT OF FOLLICULAR ABSCESS OF THE FOSSA NAVICULARIS WITH ATTENDANT FISTULA.

This condition, he remarked, was not at all infrequent. It was generally obstinate to treatment, especially when the fistula was complete, that is, had both internal and external openings. Of late he had developed a mode of treatment which had given very satisfactory results.

There were three classes of abscess of the fossa navicularis, accompanied with fistula, met with in practice, *viz.*:

1. Follicular abscess with blind internal fistula.
2. Follicular abscess with blind external fistula.
3. Follicular abscess with complete fistula.

The etiology of these three varieties was the same—all resulting from urethral inflammation. The first class was the one most frequently met with, as it was the simplest to treat. The third class was often the result of an unwise incision of the urethral canal.

The symptoms of this condition were those resulting from a contracted meatus, induration at the fossa navicularis, and more or less profuse purulent discharge. The precise nature of the fistula present in any given case could be determined by injecting into the urethra a solution of hydrogen peroxid and the use of a wire speculum.

In speaking of the prognosis of abscess of the fossa navicularis, with attendant fistula, most authorities dwelt upon the obstinate character of the affection, and Dr. Chetwood quoted the words of Morson on genito-urinary diseases to this effect. Having referred to the operative procedures recommended in the books, he proceeded to describe his own method of treatment.

The patient was placed in a recumbent position in a

good light. Artificial light with reflectors might be employed, but ordinarily sunlight was all that was required for the purpose. At this first sitting it was usually best to secure complete anesthesia by means of cocain hydrochlorate. After this was done the wire speculum was introduced. An incision was then made internally over the site of the peri-urethral swelling, after which the urethra, as far as the end of the speculum, was packed with absorbent cotton. An ethereal twenty-five-per-cent. solution of hydrogen peroxid was then injected into the interior of the sac. Effervescence having freely taken place, the speculum was closed and withdrawn, dragging out the absorbed cotton in its grasp.

In the subsequent sittings the same procedure, with the exception of the incision, was repeated, and after the first one or two it was rarely necessary to use the cocain. Toward the end of the treatment the strength of the peroxid-of-hydrogen solution was reduced to five per cent., and as the fistula gradually healed the peroxid was applied by means of a pipette. The pipette he employed was made from an ordinary glass medicine dropper, which was brought to a proper shape by the blow-pipe.

The time required for the treatment in different cases varied from two to six or eight weeks.

The intervals between the successive treatments varied from two to four days. His experience with this method had led him to conclude that with proper care and attention all cases should result in a complete cure. In patients with a tubercular tendency the treatment was apt to be somewhat more tedious than in others.

The ethereal solution of peroxid of hydrogen which he employed was a proprietary preparation known as hydrosone. It was formerly known as ozonic ether.

Dr. Chetwood then proceeded to relate briefly the histories of three cases, which illustrated the three varieties of abscess with fistula which he had described, and in conclusion stated that the permanency of the cure by this method seemed to be established by the fact that he had had the opportunity of observing a considerable number of patients at intervals of from three months to one year after the cessation of treatment, and in not a single instance had there been any return of the trouble.

DR. HERMAN F. NORDEMANN said that the results described by Dr. Chetwood were certainly very gratifying, but at the same time he believed that equally good results could be obtained by means of a much simpler procedure than that treated of in the paper. In cases of this kind he thought that all we had to do was to scrap the hardened follicle out with a curette. It seemed to him that Dr. Chetwood's method was too complicated, and that unless the operator was a specialist he would hardly be able to carry out the required measures properly.

DR. CHETWOOD said in reply that he had no doubt that in acute cases of abscess with internal and external openings, a cure could be readily effected by means of incision or scraping; but such acute cases he would hardly regard as instances of fistula. It was in the chronic cases characterized by marked induration that we met with real fistula, and it was in these that the method which he had

described was applicable. Many of the patients had suffered from this condition for years.

In regard to the hydrosone, he said that he disliked very much to make use of or recommend a proprietary article; but in looking up the literature of the subject he had found that this preparation had been discovered as long ago as 1868, by Dr. Richardson of London, while making some experiments with peroxid of hydrogen. After nearly thirty years a manufacturing chemist had taken it up and put it on the market as his own. There could be no doubt, he thought, that the ethereal solution was greatly superior to the watery solutions of the peroxids.

HENRY ILLOWAY, M.D., read a paper on

CARDIAC DISTURBANCES FROM GASTRIC IRRITATION.

It was an established fact, he said, that organic disease of the heart is apt to impair the functions of the stomach, as well as those of the liver, kidneys, and other organs. It was also well known that in advanced stages of organic cardiac diseases any undue distension of the stomach will immediately produce very serious disturbances. It was not so generally recognized, however, that gastric irritation is capable of producing, by reflex action, functional disturbances—sometimes of quite a severe type—of a perfectly sound heart.

Dr. Illoway then proceeded to narrate a number of cases illustrative of this point. The first was that of a married lady whom he found, when summoned to attend her, suffering from severe headache, nausea, and great weakness. The history showed that in returning from a funeral she had, with a party of friends, stopped at a wayside public house and partaken freely of ham sandwiches, cheese, and beer. He found that the temperature was slightly elevated and the pulse 75, and intermitting. A careful examination of the heart revealed nothing more than this intermission at irregular intervals. From his previous knowledge of the patient and the history given, he came to the conclusion that the stomach was the organ at fault, and that the cardiac irritation was produced reflexly by the gastric irritation. Under a carefully regulated diet, at first consisting only of milk and lime-water in small quantities, and the use of minute doses of tincture of nux vomica and Fowler's solution, she rapidly improved, and on the fifth day the stomach having in great measure regained its tone, and the cardiac irregularity having entirely disappeared, the patient was allowed to eat a little broiled steak. At the end of a week she was up and about, and taking her ordinary diet. For nearly six years afterward this lady was under his observation, being attended in several confinements, and he always found her heart in excellent condition.

The second case was that of a married lady of thirty, who had had three children. When called to see her he found her very despondent. She had been in poor health for some time, and the practitioner who had been attending her had told her that she had heart-disease, and cautioned her against going out, as she might at any moment fall dead. The patient was pregnant again, being about five months gone. She vomited after every meal and frequently in the intervals. After eating she had a sense of

oppression and suffered from an embarrassment of respiration, which was relieved after she vomited. Her bowels were inclined to be constipated, her tongue heavily coated, and her pulse regular, but rather feeble. In pregnancy he believed there were ordinarily present some dilatations and hypertrophy of the heart, and, taking her condition into consideration, he found the cardiac dimensions normal. At the apex, which was somewhat pushed up, there was at times heard with the first sound a slight whistling or blowing, which did not seem to him to have the characteristics of an organic mitral murmur. The heart's action was somewhat feeble, but the other sounds were entirely normal. From the general appearance of the patient and the result of his examination he concluded that the heart itself was in good condition, and that the symptoms from which the patient suffered were due in reality to the stomach, although she made no complaints of gastric disturbance, and stated that she was rather a moderate eater. In the hope of gaining more light upon the case, he observed her while she ate her dinner, and found that she took large quantities of greasy food, which she rapidly bolted. A quarter of an hour after the conclusion of the meal she began to vomit what she had eaten. In the vomit he noted large chunks of meat, which she had swallowed without mastication.

With this evidence at hand he had no hesitation in pronouncing the stomach at fault. He thereupon assured the patient that her heart was sound, and instructed her, instead of remaining in the house, as she had been advised, to go out and get plenty of fresh air and exercise. He also directed that but a small quantity of food—of proper character—should be taken at a time, and that the meals should be frequent. Medicinally he prescribed for her constipation, and to assist digestion and tone up her stomach ordered Dufresne's pancreatine with her meals, and small doses of nux vomica four times a day. Under this treatment she rapidly improved and soon recovered her cheerfulness. In four months' time she was delivered of twins, after a very easy labor, and made a quick recovery. Some time afterward he made an examination of her heart and found it perfectly normal, the whistling murmur having entirely disappeared. The patient was first seen in 1880, and she had remained in good health until the present day.

The third case was that of a general freight-agent, aged thirty-seven, who had married at twenty and now had his second wife. He was very corpulent. Ordinarily his weight was 206 pounds, but at the time he was first seen by Dr. Illoway, September, 1891, it was 186 pounds. His mother had been dyspeptic and somewhat rheumatic; his father healthy. He himself had never previously been sick, but was inclined to nervousness. During the past six months he had suffered from attacks in which a cold perspiration broke out on his forehead, his limbs became cold, and the circulation seemed to stop in his legs. The pulse was feeble, there was shortness of breath, and he had pain over the precordia. A sensation of fright and anxiety came over him and he felt as if his heart would stop and that he was going to die. These attacks, which occurred frequently, were generally promptly relieved by

a drink of whisky, which he kept constantly about him. Several eminent practitioners had regarded these attacks as angina pectoris. One had prescribed nitroglycerin, another nitrate of amyl, and a third digitalis.

The patient presented a doughy appearance of countenance, with a pallid color, which had something of a cyanotic cast in it. He did not eat much during the day, but was fond of late suppers, consisting of such viands as gooseberries, deviled ham, lobster salad, smoked tongue, and pickles, together with considerable quantities of beer. His bowels were regular and his urine normal. He complained of pain over the hepatic region, and a gnawing sensation in the epigastrium. A careful examination of the thoracic organs revealed nothing abnormal.

A rigorous diet was prescribed, beer was prohibited, but he was allowed a glass or two per day of old Rhine wine and a small amount of whisky. At first the only drug ordered was sulphate of strychnia, but afterward he was given small doses of blue-mass, with rhubarb, and, on account of his nervous condition, asafetida to the extent of ten grains a day. Still later he took phosphate of soda and tincture of nux vomica. At times the patient was greatly relieved, and the attacks were much less frequent and severe. Occasionally, however, he would indulge freely in rich foods and beer, and always paid the penalty in a return of his trouble. After one of his attacks, in which he suffered very severely, he was given a prescription consisting of subnitrate of bismuth, bicarbonate of sodium, nitrate of strychnia, and caffeine. For the paroxysm, instead of whisky, he was ordered to take lactopeptin and capsicum. The treatment finally resulted in his complete cure. The last time that Dr. Illoway saw the patient was in March, 1894, and he said that he had never had a return of his former trouble.

The inhibitory influence on the heart of the great vagus nerve, which also had a large distribution over the stomach, was described in all the text-books on physiology. It was not difficult to understand, therefore, that an irritation of the gastric filaments of the nerve, being reflected upward to the center, would be reflected back upon the heart and produce more or less arrest of action. This was clearly shown in the well-known laboratory-experiment of inhibiting cardiac action by striking with the handle of a scalpel the base of the intestines of a frog. In regard to case No. 2, the manner of the production of the disturbance was not as clear as in the other two narrated. That a valvular murmur may be produced by merely functional disturbance was now well established; but whether the disturbance in this instance was due mainly to nervous action or to the local pressure of a disturbed stomach, it was not easy to decide. That pressure, however, would play a prominent part in a case like this, when the patient was well advanced in pregnancy, could be readily understood. The stomach was undoubtedly in a state of atonicity, and would distend more markedly, even with the same amount of food, than an ordinary normal stomach, and in the case under consideration would have a greater morbid influence than under ordinary circumstances. While cardiac disturbance of an inhibitory character, due to gastric irritation, had not

as yet been reported, acceleration of the heart's action by reflex irritation from the intestinal tract had been noted, and this observation seemed to him to be of importance, as bearing upon prognosis, and also in relation to the matter of life-endurance.

DR. ROBERT NEWMAN said that the subject of the paper reminded him forcibly of some *post-mortem* examinations in which he had assisted as long ago as 1867. The autopsies were four in number. All were coroner's cases, and all were in large and corpulent men who had died suddenly. Two of them were very prominent citizens, whose death excited great surprise in the community. The observations of Dr. Illoway, he thought, offered a satisfactory explanation of these cases, which were otherwise difficult to understand. In none of these cases was there found any organic disease of the heart, but in all of them the stomach was distended with recent meals. In all of them also there was considerable adipose tissue pressing upon the heart and the stomach. It seemed to him now that if these patients, when the attack which proved fatal first came on, had been given an emetic, their lives might have been saved. If relief was not given in proper time such patients would die suddenly.

DR. WM. M. LESZYNSKY inquired of Dr. Newman if the kidneys had been found to be normal.

DR. NEWMAN replied that, as far as he could remember, the kidneys, as well as the heart, brain, and other organs, were entirely free from disease. As these were all coroner's cases, he believed that the *post-mortem* examinations had been pretty thorough.

DR. ILLOWAY, in concluding the discussion, said that the interesting cases referred to by Dr. Newman went to corroborate what he had said in regard to pressure playing an important part in cardiac disturbance. He had a number of other cases in his case-book bearing on this subject, which he would be glad to present to the Association at some future time, and in further elaboration of the matter he would take pleasure in incorporating in the paper a reference to Dr. Newman's cases.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

The Ninth Annual Meeting, held in Nashville, Tenn., November 10, 11, and 12, 1896.

FIRST DAY—MORNING SESSION.

THE Association met in the auditorium of the Nicholson House, and was called to order by the President, DR. E. S. LEWIS, of New Orleans, La. An address of welcome was delivered by the Hon. John Bell Keeble of Nashville, which was responded to by President Lewis. There were fifteen new members elected, after which the reading of papers began.

The first paper was read by W. D. HAGGARD, JR., M.D., of Nashville, Tenn., entitled:

VAGINAL VERSUS ABDOMINAL SECTION FOR PUS IN THE PELVIS.

He recounted the transitional periods in the treatment of pus in the pelvis: vaginal puncture, superseded by ab-

dominal section, and removal of pyosalpinx; total uterine castration per vaginam by the French, and per abdominem by the American school. They have reluctantly given way to modern vaginal section, and evacuation and drainage of all pus-pockets. The abdominal route affords visual inspection of the field. The attack on morbid masses can be made with safety to visceral integrity. If pus-accumulations are multiple, rupture and peritoneal soiling are avoided, that is the supreme advantage of the vaginal route. He had often seen the pelvis deluged with pus with impunity. He had also seen patients die within twelve hours from fulminant sepsis, from peritoneal contamination. The cases perishing from sepsis on the third day are classical. There is no way of distinguishing these cases clinically. All should be regarded as virulent. The writer referred to a mortality of 18.5 per cent. in a series of collected cases of laparotomy for pus, done in five metropolitan hospitals in the last year, and asked what must it be in the "unheard-from precincts," and in the hands of the great unwashed? The abdominal method offers the best approach in tubercular inflammation of the ovaries and tubes, and in small unilateral pus-tubes.

The author referred to the advantages of exploring the pelvis for retro-uterine tumors, inflammatory, and adnexa by vaginal section. The geography of pus in the pelvis in most cases makes vaginal incision extraperitoneal, a minor procedure giving major results, without shock, risk, or disturbance in convalescence. Patients will submit to it who will refuse more formidable procedures. We can change the methods, but we can't change the patient. In prolonged sepsis from huge abscesses, posterior section and drainage are a life-saving procedure. The special indications are in (1) early cases of acute suppurating salpingitis; (2) incipient post-puerperal peritonitis; (3) large pyosalpinx and true pelvic abscess. The first group includes early gonorrheal and abortional cases. The essayist had incised a tense tube and let out serous fluid and curetted a gonorrheal case of a month's standing with pain, temperature, and tenderness for three days. The opposite tube was normal. In a week that tube became similarly affected, and was similarly treated. He believed those serous effusions in the Fallopian tube were the preceding pathological condition to pyosalpinx. If this is true and it is the embryonal history of suppurating salpingitis in early gonorrheal and other inflammatory cases, the prophylactic value of vaginal section will be the greatest boon yet given to infected woman. In puerperal cases, incipient peritonitis, and puddles of pus in Douglas' space imperatively demand incision. Should simple pus-letting in any of these cases not effect a cure, subsequent operation for removal of the relics of previous ravages can be done without the dangers incurred in the presence of pus. The field of vaginal section is to prevent suppuration in early cases, to anticipate it in puerperal cases, and to save life in desperate cases. It is simple, surgical, and safe. Its application to the pelvic inflammatory processes and to pus in the pelvis is one of the greatest surgical triumphs of the age.

DR. JOSEPH TABER JOHNSON of Washington, D. C., said that while the vaginal method had a great many

points in its favor and was being resorted to more and more in cases of large pus-collections in the pelvis, yet those who had been familiar for a considerable time with the abdominal route, could operate more conveniently and dexterously by this method and with greater safety to the patient than by the vaginal method. He could not agree with the speaker that the vaginal operation may be done without any risk or damage to the patient. Sometimes in operating through the vagina for the purpose of removing the uterus and its adnexa, or for large pus-collections high up in the pelvis, where it is necessary to manipulate the parts a good deal, and to do a thorough enucleation, the surgeon was likely to tear the intestine, the bladder, the ureter, or rupture a large vessel which is out of sight. In such cases the abdominal is much safer than the vaginal route. However, the vaginal method has much to commend it in cases of pus-collections that are low down in the pelvis.

DR. CHARLES P. NOBLE of Philadelphia believes we should practise a judicious eclecticism. He did not feel that either the abdominal or the vaginal method possessed all the advantages, but if restricted to one or the other he should choose the abdominal rather than the vaginal route. An objection formerly urged against the abdominal route was the large percentage of hernias which followed this method. Only a week since he had tabulated the operations he had done for four years, which amounted to 397 abdominal cases, in which he had used the buried suture in closing the abdominal wound. Of this number seven of the wounds suppurated, while 390 healed by primary union. Of the seven which suppurated, one had a hernia. Of the 390 cases, one had a large umbilical hernia. Aside from these two cases, he has not had any hernias in his operative work for the last four years, particularly where the buried suture was used. If the patient is in a condition to permit the surgeon to do ideal work, the question of hernia was such an insignificant one that it might be left out of consideration. The matter of hernia following abdominal operations was one of the stock arguments against the abdominal method. The next objection raised against the abdominal method was the great amount of shock as compared with the vaginal. His experience has been that unless the gynecologist operates on the desperately bad cases, shock played a small rôle in abdominal work. He had had more shock following vaginal than abdominal operations.

DR. HOWARD A. KELLY of Baltimore, said that whenever possible, pus in the pelvis should be treated by vaginal puncture or section posterior to the cervix, without sacrificing any of the uterine appendages. A large percentage of the cases thus treated would have no future discomforts. Illustrative cases were cited. One of the principal arguments advanced by advocates of the vaginal route in removing the uterus, tubes, and ovaries, was the excellent drainage that could be secured by this method. In Dr. Kelly's opinion it is unnecessary to take out the uterus to get drainage. By making an incision posterior to the cervix and breaking up adhesions, free drainage could be established.

DR. L. S. MCMURTRY of Louisville said a deep im-

pression had been made upon the profession in the last few years by the vaginal method of operating for pus in the pelvis. The procedure, however, was by no means a new one. Battey, in his original operations upon the ovaries, attacked the pelvic organs through the vault of the vagina. The method of attacking accumulations of pus in the pelvis by vaginal puncture and drainage, practised by Kelly as far back as 1889, was the universal practice of abdominal surgeons for a long time. The sacrifice of the uterus in the majority of cases of suppurative pelvic inflammation was unnecessary. While there were undoubtedly puerperal cases with suppurative pelvic inflammation, where it was necessary to remove the uterus, it was not so to such an extent as to make it a rule that this organ should be taken out. Surgery should be confined within the limits of removing only such diseased tissue or organs as are necessary for a complete cure.

DR. J. WESLEY BOVEE of Washington, D. C., objected to anterior colpotomy in dealing with pus-cases, unless the accumulation of pus was on top and in front of the bladder. He thought these cases could not be drained through the anterior vaginal route, and the pus could not be reached in many cases. He believes it is not necessary to remove the uterus at the same time pus-tubes are taken out. He had seen cases where there was an abscess of the ovary, an abscess of the Fallopian tube, and another alongside of each ovary, with three separate cavities on one side. By draining one, a large quantity of pus could be evacuated, and perhaps in some cases this would be all that was required. He did not want to be understood, however, as being opposed to the vaginal route in very urgent cases.

DR. R. B. MAURY of Memphis had during the last two years made it his duty to study thoroughly the subject of vaginal hysterectomy, as he had done quite a number of these operations without any mortality, without any accident, or unpleasant results. But he would not undertake to say that we ought to substitute it for laparotomy. Both abdominal and vaginal hysterectomy were operative measures that surgeons must avail themselves of according to the circumstances of the case. Dr. Maury then cited the histories of two cases that he had treated within the last thirty days, which illustrated the advantages of the two methods.

DR. W. E. B. DAVIS of Birmingham, Ala., said the practice of incising pelvic abscesses was so old that it hardly required discussion, but the method of attacking pus-tubes by vaginal section was comparatively recent. Unquestionably, vaginal incision for pus confined to the tubes and ovaries would save these important organs in a good proportion of cases. In all cases of large pus-collections in the pelvis, the only thing that should be done was to incise the abscess and drain, and then later on the surgeon should be prepared to do an abdominal section, but he would rarely find occasion to do this. Total ablation of the uterus and its adnexa was unnecessary in many instances in which it was practised by some surgeons.

A. M. CARTLEDGE, M.D., of Louisville read a paper on CHOLELITHIASIS,

in which he reported several interesting cases. He

pointed out the diagnostic indications for cholecystostomy and cholecystenterostomy, and considered the former as the only operation applicable to the cases cited. In his opinion there were no cases that primarily demanded cholecystenterostomy. He was not prepared to say that this operation with the use of the Murphy button was good surgery, nor that the button was free from danger.

DR. JAMES MCFADDEN GASTON of Atlanta agreed with the essayist that in ordinary cases of gall-stones in the gall-bladder, with obstruction of the cystic duct, the simplest procedure was to lay open the abdominal wall, attach the gall-bladder to the incision, and remove the gall-stones. But in a large proportion of cases of complete obstruction he doubted whether there would be restoration of bile through the cystic duct into the gall-bladder. Relative to the comparative value of cholecystostomy and cholecystenterostomy, the two operations were applicable to entirely different conditions. No one would operate and expect benefit from a cholecystostomy, except to establish drainage for the bile in a case of permanent occlusion of the common duct, and this was the only condition in which the advocates of cholecystenterostomy had ever claimed anything for it.

DR. JOHN D. S. DAVIS of Birmingham emphasized the point that patients frequently have gall-stones without symptoms, more particularly jaundice. He does not believe that it is ever wise to resort to cholecystenterostomy as a primary procedure. The surgeon should first resort to drainage, and then if relaxation does not take place and the flow of bile is not effected, a cholecystenterostomy should be done.

DR. GEORGE BEN JOHNSTON of Richmond, Va., spoke of the diagnosis of gall-stones. He is convinced that if examinations of suspected cases of gall-stones were as careful and minute as they should be, surgeons would frequently find them. It has been his experience that enlargement of the gall-bladder does not always occur when a gall-stone exists, but that a condition which simulates enlargement of the gall-bladder frequently does exist, this condition being due to the presence of numerous dense adhesions found in the neighborhood of the gall-bladder, glueing it to every tissue with which it comes in contact. One thing which struck him as very singular in connection with the presence of gall-stones was, that the size of the stone or stones seems to make no difference in the production of symptoms. In regard to hemorrhage, it is generally admitted that cases in which cholemia is profound are the ones in which we are to expect hemorrhage, and by no known method can this hemorrhage be successfully controlled. He considers cholecystostomy a proper procedure in all cases, except in those where the obstruction is in the common duct and cannot be relieved.

DR. W. E. B. DAVIS of Birmingham said surgery of the gall-bladder for the removal of gall-stones had given brilliant results, but there were still questions in regard to operative procedures on the ducts that were not as yet definitely settled. He did not believe the essayist referred to cholecystostomy as being the choice of operation in a

case where the obstruction of the duct could not be removed; that he must have had in mind the procedure advocated by Murphy of resorting to this operation in a case of stone in the gall-bladder where there was no obstruction in the duct. Murphy resorts to cholecystenterostomy instead of cholecystostomy, and he thought the essayist did not intend to convey the idea that he would not do a cholecystenterostomy where the obstruction in the duct could not be removed. Cholemic cases were bad to operate upon. Perhaps in not more than five or six per cent. of the cases is the obstruction found in the common duct. Some years ago the author made experiments which conclusively showed that the surgeon could incise the duct and drain with gauze without peritonitis following this procedure. A paper on this subject was read by him before the American Medical Association in 1892, since which time he had done further experimental operative work in which sutures were not used after the stone was removed from the duct, and while several of the cases were already very nearly dead from cholemia and eventually died, yet in the cases in which this method was resorted to, the abdominal cavity was walled off and peritonitis did not result.

DR. GEORGE A. BAXTER of Chattanooga directed attention to the frequency of gall-stones unattended with the ordinary symptoms of pain or colic, and cited an illustrative case in which there were found, *post mortem*, three large stones in the gall-bladder.

DR. F. W. MCRAE of Atlanta cited a case in which there were repeated attacks of colic with profound cholemia. An operation was undertaken with the idea that the obstruction was in the common duct, and that there were stones in the gall-bladder. On opening the abdomen in the presence of several physicians, he found the liver much enlarged and reaching almost to the umbilicus; but instead of finding the gall-bladder enlarged, he found a fibrous cord not larger than his index-finger. The common duct from disuse was reduced to a mere cord. A calculus was found in the hepatic duct, extending up into the transverse fissure of the liver. He did not know what to do for a case like this, and after consultation with his colleagues closed the abdomen. The patient died five days later from exhaustion. If anything could be done for such patients he would like to know it.

(To be continued.)

BOOKS RECEIVED.

Transactions of the Medical Society of the State of New York, 1896. In this handy volume we find recorded not only the scientific proceedings of this society, but also much valuable information relative to its organization and membership.

Transactions of the Medical Society of the State of Pennsylvania, vol. xxvii, 1896. The proceedings of the forty-sixth annual session are here presented for convenient reference.

Transactions of the Association of American Physicians, vol. xi, 1896. The proceedings of the last meeting of this learned body occupy 450 pages, in which may be found the original papers describing many of the latest advances in medicine.

Index Catalog of the Library of the Surgeon-General's Office, U. S. Army. Second Series, vol. I. A to Assurri, 1896. This volume includes 6346 author-titles, representing 6127 volumes and 6327 pamphlets. It also contains 7884 subject-titles of separate books and pamphlets, and 30,384 titles of articles in periodicals.